Montana Outdoors

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Front Cover
The shaggy manes in Steve Wirt's photo are common, edible and not easily confused with other mushroom species. Sometimes called "lawyer's wigs," these fungi can be found in both spring and fall.

Inside Front Cover
Barbara Brown Lathrop's photo proves that Wild Horse Island is an ideal spot from which to watch the excitement of Flathead Lake sailboat races.

Back Cover
Louis Kis' photo of a sunset over Flathead Lake illustrates that the beautiful area in northwestern Montana represents some of the best scenery the Big Sky Country has to offer.

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Preserving A Piece Of The Wes

THE Flathead Lake region—that huge chunk of mountains, valley, and forest land surrounding Flathead Lake in northwestern Montana—represents many things to many people. To Montana sportsmen, it may mean big, clean lakes, wild rivers, bull trout and herds of deer and elk. To out-of-state visitors, it may mean the lofty peaks and verdant forests of Glacier National Park. To wilderness enthusiasts, on the other hand, it may signify the vast Bob Marshall Wilderness complex, complete with grizzly bears and bald eagles. Still others might think of this area in terms of the Flathead Indian Reservation or the grain fields of the valley farm lands. Actually, though, most people probably view the Flathead region as it really is—a composite of all these things. It's not just national park land or forest land or lake or valley, it's all of them put together.

Like many beautiful areas in the western United States, the Flathead region is undergoing changes. More roads, timber cuts, homes, industries and people are some of the obvious changes. Less apparent, though, are the more subtle changes that are taking place in air and water quality, wildlife habitat and other aspects of the environment. But perhaps even more important are the changes looming on the horizon, the changes that may take place in the next 10 or 20 years.

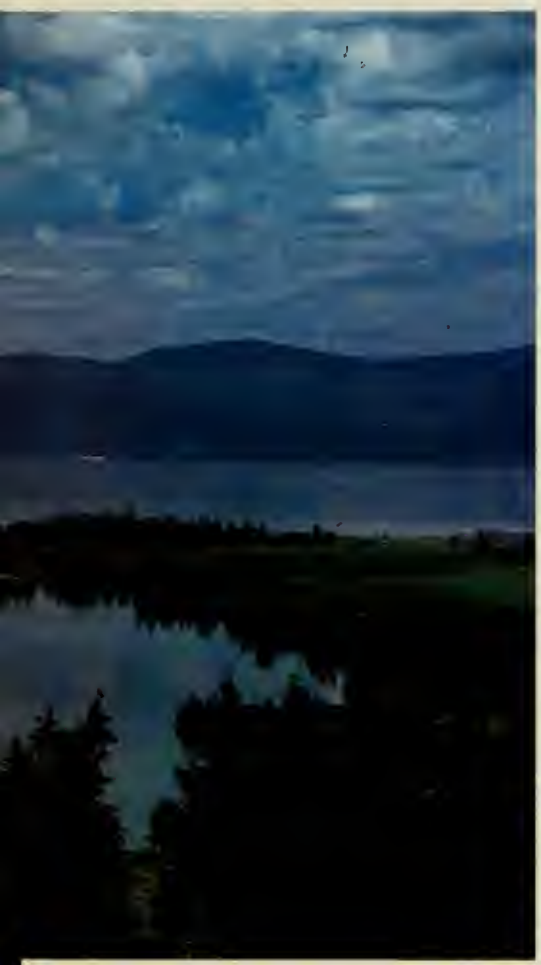
Glacier National Park is a prime example of what is already taking place. A number of articles in national publications have recently described the mounting pressures on the environmental resources of Glacier Park. The National Park Service itself has listed Glacier as one of the more "threatened" wildlands under its direction. Such things as second-home development, road improvements, logging and energy exploration, while they are taking place mostly outside the Park's boundaries, nonetheless have a great impact on the environment and the overall setting in which Glacier Park is situated.

Flathead Lake, the largest body of fresh water west of the Mississippi, is fed by the Flathead River and its many tributaries, which drain into the lake near the small resort town of Bigfork (above photo: Louis Kis). Bear, elk, and mountain goats feed on beargrass, a distinctive plant in the Flathead (DFWP photo: Mike Aderhold). Howell Creek, a tributary of the North Fork of the Flathead River, is the most important spawning stream for bull trout in the North Fork area (right DFWP photo: Otis Robbins).

As another example, the Flathead National Forest, managed under "multiple use" principles, has its own set of problems and developmental pressures with which to contend. Almost 1 million acres of the Forest are under review for oil and gas leasing. Timber sales in the North Fork drainage are under attack by environmental groups because of fears they will adversely affect grizzly bears and water quality. Also, as anyone who has followed recent environmental issues knows, Flathead Forest officials are caught up in a controversy over whether gas and oil exploration should be allowed in the one area many people have long considered inviolate: The Bob Marshall Wilderness.

Most Montanans are aware that the Flathead region is faced with these major developmental pressures, and that action needs to be taken to protect the environment. Professionals in the federal and state resource agencies, local government officials, and many citizens have

t by Gene Taylor



worked on the problems through the various channels open to them. But about 7 years ago, when it became known that a Canadian company wanted to develop a large coal deposit just north of the Canadian border in the North Fork of the Flathead River Valley, this concern began to bring people together to confront a common problem. The Flathead Coalition and the North Fork Technical Committee were formed to take more unified and direct action to meet the threat of potential large-scale environmental damage.

In addition to these grassroots efforts, the U.S. Congress began to take special notice of the problems confronting the Flathead region. With the sponsorship of Montana Senator Max Baucus, Congress authorized the Environmental Protection Agency (EPA) to conduct a 5-year investigation of the Flathead area environment, of potential impacts on it and ways to combat them. This study, officially named the Flathead River Basin Environmental Impact Study, began in 1978 and is now in its fourth year.

Although authorized by Congress to conduct the Flathead Study, the EPA realized that local knowledge and interests, both on the agency level and among citizens, should be factored into the effort. The EPA did not want just another federal study conducted by outside "experts." First, it reasoned that the knowledge to direct the study was available in the study area. Second, and most important, the EPA knew that those who were to direct the study were the very ones who had to be satisfied with it when it came time to use its results. So Roger Williams, then the EPA Regional Administrator, in conjunction with then-Lieutenant Governor Ted Schwinden, agreed to set up a steering committee composed basically of people living and working in the Flathead region.

The Flathead River Basin Environmental Impact Study Steering Committee thus came into being. This approach is unique among federally funded studies. First, the Committee was given the authority to make all funding decisions as long as these decisions meet overall study goals and federal regulations. Second, the makeup of the Committee assured the local control. There are 15 members, with representation from county and city government, industry, the Flathead Indian Reservation, federal agencies, and private citizens. The EPA and the Governor's Office each have only one vote.

After surviving some stormy early sessions, and thanks to the outstanding leadership of the late Leland Schoonover of Polson and other dedicated members, the

Steering Committee hammered out a consensus of what needed to be done.

First, the Steering Committee limited the study to Lake and Flathead Counties. This was still a huge area, but one which was well-defined and which took in the major potential problems of coal, oil and gas, and other developments.

Second, the Steering Committee decided to limit its work to the gathering of essential environmental and resource data and to the development of management tools. In other words, it decided to collect and analyze facts and to leave policy making in the hands of local, state and federal governments. It would supply the information for policy makers to use in making rational decisions and for land and resource managers to use in carrying out these decisions.

Thus, the overall goal of the Steering Committee was to develop scientific data on the Flathead area's environment and on how this environment would react in the face of developmental impacts. But it should also be pointed out that the Steering Committee was aware of the wealth of data that had already been generated on the resources of the study area. To avoid duplication and to build on what had already been done, one of its first actions was to begin a complete data search and compilation of all previous research.

The Steering Committee quickly came to the conclusion that it could not tackle all the potential environmental problems in the study area. With the first-year appropriation of $435,000 (the 5-year study was authorized for $2.9 million), members knew they had to concentrate on critical problems and on studies that would result in the greatest usefulness for the dollars spent. Thus, research efforts were begun in (1) fisheries (by the Montana Department of Fish, Wildlife and Parks), (2) limnology (by the staff of the University of Montana's Yellow Bay Biological Station on Flathead Lake), (3) air quality (by the Montana Air Quality Bureau), and (4) water quality monitoring of the North Fork of the Flathead River (by the U.S. Geological Survey). The Steering Committee also hired Mr. Ron Cooper, a professional resource and environmental planner, to work full time on the study to give it day-to-day direction and to make sure it was coordinated with other research and planning efforts taking place in the study area.

Congressional support ensured that these studies continued on schedule. In addition, several new studies were begun. First, an economic study was conducted by the Montana Department of Community Affairs to ascertain the costs of development and also the makeup of the study area economy. A sedimentation study was done by University of Montana scientists to look at the critical role of sediment in Flathead Lake. A wildlife study, carried out cooperatively by a unit of the National Park Service and the University of Idaho, was initiated to examine the important wildlife habitats found along the area's rivers. Another study was recently started, again under the direction of the DFWP, to look at water-based recreation use and associated economic values for the Flathead Lake and Rivers system. Finally, a soils study was begun by researchers at Montana State University to determine the suitability of Flathead soils for on-site waste disposal.

A quick look at these studies reveals several things. First, they are aimed at filling critical data gaps. For example, Dr. Jack Stanford and his associates at the University of Montana's Yellow Bay Biological Station have worked hard at gaining an understanding of the water quality status and trends of Flathead Lake and its tributaries. These data will prove invaluable in assessing the impacts of potential major land disturbances. Second, the studies are interrelated. Dr. Stanford's limnologists, for example, are depending heavily on the Flathead Lake sedimentation research being conducted by Dr. Moore at the University of Montana, and vice versa. Even the economics research, by determining how the region's economy functions and how environmental values translate into dollars and cents, will add information vital to the region's future. Third, the studies are being conducted by people and organizations with wide experience in and commitment to the study area. As an example, the Steering Committee decided that the DFWP should do the fisheries work because it not only had the capability, but the responsibility for the resource in the long run. This reasoning was followed with other study selections.

Will all this effort be of value to the average Montana sportsman? Or is it too "scientific" to be of use to the guy who justs wants to catch a mess of fish? Perhaps a look at some of the fisheries work might help answer these questions. Most of Montana's fishermen have heard of the Flathead's famous bull trout and the fine cutthroat fishing in the tributaries of the Middle Fork of the Flathead River. But how many people know where these fish spawn, or what type of habitat they need, or just how much of this critical habitat is available? After 4 years of diligent study the DFWP now has many of the answers to these questions.

For example, take Howell Creek, a large tributary entering the North Fork of the Flathead River just north of the Canadian border. It also runs right through the Cabin Creek coal mine site—a site which may someday be the scene of a huge open-pit coal mine operation. However, DFWP fisheries biologists now know that Howell Creek is also the most important spawning stream for bull trout in the North Fork. Bull trout can't just travel elsewhere to spawn, they need a very special set of conditions. If the Howell Creek spawning area is destroyed or damaged, the fishery will be severely impaired. Multiply the information we now have for Howell Creek across most of the North Fork and Middle Fork drainages, and you can see the Flathead Study will be very useful for the long-term management of the valuable fisheries of this area.

As it nears the end of its 5-year existence, the Flathead Basin Study Steering Committee can say it has accomplished one thing above all others: Answer the "what needs to be done" questions by supplying scientific resource and environmental data and a much-improved ability to predict impacts. Although the study hasn't been able to answer all the questions about this huge and diverse area, it will certainly help Montana and the rest of the country preserve a beautiful piece of the West.■

photo: Dean Biggins

Turkey Vultures:

Nature's Sailplanes

by Ken Walcheck Silence hangs from horizon to horizon over the lower Yellowstone River. As we watch a summer storm rapidly building in the west, anvil-shaped clouds flow over the landscape like syrup over a waffle. As the storm charges forward with incredible swiftness, heavy bolts of lightning arc between the approaching clouds. Although its beauty is engaging, the storm is fierce enough to force us toward the car. About halfway back, a finger of lightning outlines a towering cottonwood—white, scarred, dead. Roosting on the tentaclelike limbs are what appear to be large, black lumps of coal, but what in reality are turkey vultures.

continued

In Montana, as in many other places, this large bird is commonly called a buzzard.

As the rain hammers down on us, we stare at the birds. From each "lump" droops a naked, glistening red head, appearing even more eerie in the charged atmosphere, cloaked by a black velvet backdrop. As the claps of thunder grow louder and the darkness deepens, I feel I am slipping back through time. Some 70 million years ago in the Tertiary Period, the mighty *Teratornis,* a large vulture-like bird with wings that spanned 12 feet, ruled the skies.

It requires little imagination to list all the repulsive images that most humans have of vultures. Dark, drooping wings and featherless, snaky necks hardly inspire confidence. The sight alone is enough to fuel the imagination, but there is the smell and the sound, too. Capricious odors of death and decay—mixed with a dash of ozone—permeate the air. We are seemingly passing through a place of evil, one that arouses instinctive fear.

Nearing the roost tree, a shudder runs down my back as black feathers rustle, beaks clack, and soft, intermittent hisses, grunts and croaks reach our ears. Vultures on the lower branches rear up with outspread wings, bristling feathers and glaring, beady eyes. One bird regurgitates a vile, putrid-smelling concoction from its crop that causes us to retreat. The encounter was like a scene from Edgar Allan Poe's "The Raven."

Vultures are found in temperate and tropical zones all around the world. Three species inhabit North America. The black vulture, *Coragyps atratus,* soars over the South Atlantic and Gulf states. The turkey vulture, *Cathartes aura,* the best known and most widely distributed, ranges from southern Canada to South America. A third member of the family—the California condor, *Gymnogyps californianus*—resides mainly in a 30,000-square-mile area stretching from the outskirts of Los Angeles north to Fresno and San Jose. This species, with perhaps about 25 birds remaining, is officially classed as endangered by the federal government.

Adapted only to eating carrion, vultures are members of nature's sanitation corps. Scientists have named the American vulture family "Cathartidae," from a Greek word meaning "cleanser" or "scavenger." Even though vultures are rarely appreciated, they perform important functions such as cleaning up carrion and helping to quickly recycle nature's nutrients. Despite their preference for carrion, some vultures—including the turkey vulture—will occasionally take small, live animals.

Unlike condors and black vultures, turkey vultures use their sense of smell to find carrion. Even though they can see their meal below them, the birds seem to test the air before coming in to eat. Researchers have found that even well-hidden food attracts the birds if it is odoriferous enough.

As creatures of land, air and sometimes water, birds have special needs. As a consequence, natural selection has provided them with a complex, highly adapted exterior to cope with their surroundings. The vulture is a classic example. Its hooked beak functions like a surgeon's shears in snipping through tough hides and abdominal walls. Its raspy tongue assists in removing flesh from hidden nooks and crannies. Sturdy, chickenlike feet with blunted talons brace the vulture as it leans back and pulls at a carcass.

The naked head and neck are useful for probing deep inside carcasses to feed on entrails. A bald head and bare neck minimize soiling as it feeds, and a ruff of feathers at the base of the neck helps keep the lower plumage dry.

Despite some human descriptions which unfairly malign vultures, they are among nature's most eloquent expressions of flight. On the ground, the vulture is incredibly clumsy, but in the air it is the epitome of grace and floating beauty. No other bird commands greater mastery of catching rising updrafts (or thermals) and riding them. With eagle-sized wings having slotted tips to lend stability, a vulture can soar for hours and cover hundreds of miles—a highly tuned sailplane with reflexes instead of instruments, and tendons and ligaments replacing control cables. Since wing-flapping expends energy, vultures depend on sustained flight for their almost constant aerial searches.

How are vultures able to zero in on carrion so quickly and in such great numbers? Leslie Brown, a naturalist who lives in Nairobi, Kenya, provides a plausible answer. As reported by Emily and Per Ola d'Aulaire in *International Wildlife,* Brown estimates a vulture soaring at 2,000 feet can inspect a 50-square-mile area with its keen eyesight. Neighboring vultures soaring at similar heights provide a network of scanning sentries. When a carcass is spotted by a soaring bird, it rapidly descends in a wing-folded dive. This sudden dive signals adjoining vultures, who, in turn, alert their neighbors. This chain reaction, as observed by Brown, can draw in 100 vultures from as much as 5,000 square miles.

Turkey vultures use caves, hollow stumps, rocks, cavities in cliffs or the ground for nest sites. If you approach a nest containing eggs, the incubating parent may fly off when you are some distance away. But when the downy white young have hatched, the adult stays beside them, and will even allow you to touch it. When the parents feed the young by regurgitation, the stench of carrion tends to discourage human visitors.

As the birds grow, glossy brown feathers appear and the down gradually wears away. Unlike the red of the adult, the skin of the young's head and neck is brown after the first plumage has disappeared. Between two to three months after hatching, the fully grown vulture leaves its nest for a life of searching for dead animals.

Where in Montana could one see turkey vultures? Makoshika State Park near Glendive offers one of the better opportunities. Although resident turkey vultures can readily be seen in Makoshika during the summer, September is the prime time to observe large numbers of birds because the park is a staging or holding area for migrating vultures. According to former Department of Fish, Wildlife and Parks caretaker Louis Psenda, turkey vultures start to arrive about the second week of September. They remain within the park for about three weeks and then migrate to warmer climates in the South.■

The Catchall

A Tribute to Joseph J. Klabunde (1917-1982)

At the end of the first week in January, Montana sportsmen lost a friend: Joseph J. Klabunde, 64, longtime Fish and Game Commissioner, died of a heart attack at his home in Havre.

His 12 years and 5 months on the Fish and Game Commission is the longest anyone has served on that board since it was established in 1895. He worked with four governors, six department directors and 20 other commissioners. He was appointed commission chairman on Jan. 3, 1977, and served in that capacity until March 1981.

Among Joe's many contributions to the department was his support for land acquisition. During his tenure on the commission, the department purchased 110,000 acres—more than half of the total acreage it now owns. Since 1967, the department has purchased more than two dozen wildlife management areas, 14 state recreation sites, 10 state monuments and 4 state parks.

While his guiding hand in department land acquisitions has been widely recognized, less well known was his ability to bring people with different perspectives together for the benefit of wildlife conservation. He loved people, and it showed. With a handshake and a one-on-one conversation, he could excite interest and invite trust where it otherwise would not have existed. On many occasions, he was a bridge builder, peacemaker and translator between federal and state wildlife administrators, between landowners and sportsmen, between the Legislature and the department and between Washington, D.C., and the "back forty." No one except his wife Connie and a handful of close friends and associates will ever appreciate how good he was at bringing people together.

Joe was devoted to his family, the community of Havre, Montana's wildlife and the people who treasure and enjoy this resource. He loved children, and firmly believed that youth conservation education is the key to instilling an appreciation for wildlife in future generations. To this end, he was active in Boy Scouts and for many years had a scout troop of his own.

Joe had an amazing amount of energy and the ability and willingness to work for causes and individuals in which he believed. His spirit will survive in all those whose lives he touched, the community projects he initiated and the special outdoor places he helped protect. He gave unsparingly of his time and money in behalf of wildlife and Montana's sportsmen. The Department of Fish, Wildlife and Parks and all Montanans owe Joe Klabunde a vote of thanks.

A memorial fund has been established, and contributions may be sent to: Joe Klabunde Memorial Fund, P.O. Box E; Havre, MT 59501.

Joe Klabunde (DFWP photo: Steve Bayless)

Bighorn Stamp Attracts Crowd

The first-day sale of the U.S. Postal Service's bighorn sheep stamp on Jan. 8 drew such a crowd that the event had to be moved to Hysham, a town about 25 miles from the tiny dot on the map that is the postmark—Bighorn, Montana 59010.

Bighorn Postmaster Irv Bergum's combination Mercantile-Post Office would have been filled to overflowing, so about 500 people—collectors, dealers and local residents—followed the ceremony to the Custer-Hysham High School Gymnasium, which the Postal Service rented for the occasion.

As soon as the ceremony ended, stamp buyers stampeded. Six postal employees from Billings and Hysham canceled about 200,000 "first-day covers" (envelopes bearing the new stamp and postmark).

The stamp is the first commemorative issued in Montana since 1954, when one honored Western artist Charlie Russell. The bighorn stamp is based on a photograph by Jim Brandenburg of Minneapolis. If you think you've seen it somewhere

before—you're probably right. It was featured as one of 10 animals in a wildlife stamp booklet that appeared in 1981, all based on Brandenburg's photos.

Jon Swenson, a wildlife biologist for the Department of Fish, Wildlife and Parks in Rosebud, introduced the missing guest of honor: the bighorn sheep which once roamed the area. Bighorns now are found no closer than 50 miles.

Lewis and Clark noted the sheep at the confluence of the Yellowstone and Bighorn rivers, and they were items favored on the menu by soldiers at Fort Custer. Civilization's advance greatly reduced their numbers and the state began protecting them from hunting in 1915. Swenson noted the herds have been rebuilt, and Montana now has more bighorn sheep than at any time during the 20th century.

Missoula Festival Offers Diverse Fare

In addition to the film competition in professional and amateur categories, the Fifth Annual International Wildlife Film Festival includes a wildlife art exhibit, a wildlife photography

competition and exhibit, panels on subjects such as the impact of wildlife films on children, workshops on subjects such as "Filming Techniques," plus the opportunity to view the festival's prize-winning films.

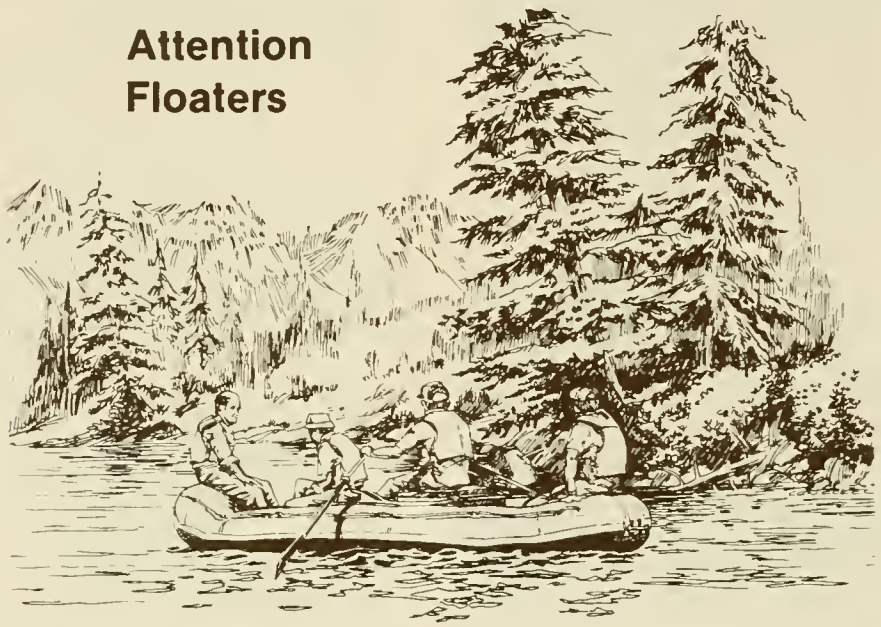
Sponsored by the University of Montana Chapter of The Wildlife Society, the event will be April 14-18 at the UM campus in Missoula.

Since the first competition in 1978, the goal of the festival has been to promote "public awareness of the issues surrounding wildlife and encouraging production of the best possible films, both in technical quality and content, about wildlife and wildlands," according to a festival spokesperson. From a principally American and Canadian effort in 1978, the festival has grown into an international competition, with film entries in 1981 from not only Canada, but Japan, England and New Zealand.

The films are judged by wildlife scientists, recognized wildlife filmmakers and humanists for technical quality, biological accuracy, art form and humanism. Festival sponsors noted these "stringent standards are a challenge to filmmakers to correct the often inaccurate images of wildlife depicted on screen and television, as well as to set criteria by which the public can wisely and soundly assess the wildlife films available to them."

The deadline for entering films is March 19. For additional information about entering or about other festival events, contact: Wildlife Film Festival, Wildlife Biology Program, University of Montana; Missoula, MT 59812 (406/234-5272).

Attention Floaters



Floaters who will take to Montana's waters this season can obtain river guides for recreational floating on several popular rivers.

The following guides are available from the Department of Fish, Wildlife and Parks Helena office (Helena, MT 59620), or from the appropriate regional department office:

- Lower Yellowstone River—map pages on waterproof paper. Provides many "how to" tips on floating the Yellowstone from Billings to its confluence with the Missouri. Contains sections on historical treasures, fishing access sites, wildlife management areas, fishing the lower Yellowstone (angling tips and angling hot spots for several species of fish found in that section of river), agate hunting, reading white water, using a paddle, diversions and rapids, and river safety. Cost: $1.50.
- Smith River—plots the course from the Smith River Fishing Access Site to the Eden Bridge. One-page, fold-out map. No charge.
- Blackfoot River—will deal primarily with the management corridor between the Missoula-Powell counties line and Johnsrud Park. One-page, fold-out map. Not available until June; there may be a small charge to recover printing costs.
- Missouri River—the upper Missouri, between Holter Dam and Great Falls. One-page, fold-out map. No charge.

Although in short supply, the following is available from the Bureau of Land Management, District Manager, Lewistown District, Airport Road; Lewistown, MT 59457:

- Missouri River—the wild and scenic portion. One part maps the Missouri from Fort Benton to the mouth of Arrow Creek, and the other part continues to the Fred Robinson Bridge. Cost: $1.50 each.

The following guide was produced cooperatively by the Glacier Natural History Association, the Flathead National Forest and Glacier National Park. It is available from the Forest Supervisor, Flathead National Forest, Box 147; Kalispell, MT 59901, or from Superintendent, Glacier National Park; West Glacier, MT 59936:

- Flathead River—the three forks. Depicted from either the Canadian border or the headwaters of each fork to their merging point. Provides safety tips and indicates private land along the river. Cost: $2.

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We Care About Eagles
The Year of the Eagle
NATIONAL WILDLIFE WEEK MARCH 14-20, 1982
JOIN AND SUPPORT THE NATIONAL WILDLIFE FEDERATION AND STATE AFFILIATES

National Wildlife Week—March 14-20, 1982

On June 20, 1782, the Continental Congress adopted the bald eagle as the central figure of the Great Seal of the U.S.A. The District of Columbia, and the states of New York, Pennsylvania, Mississippi, Missouri, Arkansas, Michigan, Iowa, Oregon, New Mexico and Wyoming also use the eagle in their official seal.

At the time the bald eagle became our national symbol, it nested throughout the country. As the United States expanded from thirteen colonies to 50 states, the population of the bald eagle declined. The clearing of land for agriculture and the development of cities and industry drastically reduced eagle nesting and roosting habitat. Egg collecting and shooting also contributed to the decline of the bald eagle.

On June 8, 1940, in response to the need to protect our national symbol, Congress enacted the Bald Eagle Protection Act. Despite strict enforcement of the Act, the number of bald eagles decreased rapidly in the 1950's and 1960's. This was mainly due to the widespread use of pesticides such as DDT. These long-lasting pesticides drained off farmlands into streams, rivers, and lakes and concentrated in the fatty tissues of fish. Bald eagles fed on these contaminated fish, and the pesticides interfered with the proper production of the eagles' eggs.

The Department of the Interior officially lists the bald eagle as "endangered" in 43 of the 48 contiguous states and "threatened" in the other five: Minnesota, Wisconsin, Michigan, Oregon and Washington. (It is not endangered or threatened in Alaska and has never existed in Hawaii.)

Fortunately, greater public awareness of the bald eagle's decline in the past two decades has led to an improvement in its once bleak future. In the last ten years the use of pesticides such as DDT has been restricted in the United States, eagle refuges have been established, and penalties for illegal shooting of bald eagles have been strictly enforced. The bald eagle population is slowly recovering. There are now an estimated 1,200 active nests in the lower 48 states, as well as a much larger bald eagle population in Alaska.

To celebrate this encouraging news and the 200th anniversary of the bald eagle's selection as our national symbol, the National Wildlife Federation has proclaimed 1982 as the "Year of the Eagle." The bald eagle is an excellent example of successful efforts to improve an endangered species chances of surviving. But this great bird *still* needs our help . . . and so do hundreds of other endangered species, as well as all wildlife. Everyone can help wildlife by supporting local, state, and national efforts to protect and improve wildlife habitat. We can make a difference if "We Care."

Contributors

Although Montana sportsmen, out-of-state visitors, wilderness enthusiasts and others may view the Flathead Lake region differently, it probably is a composite of the lake, and the elk, and the lofty peaks of Glacier, and the Bob Marshall with its grizzly bears. As **Gene Taylor** writes, "Like many beautiful areas...the Flathead region is undergoing changes. More roads, timber cuts, homes, industries and people are some of the obvious changes. Less apparent, though, are the more subtle changes that are taking place in air and water quality, wildlife habitat and other aspects of the environment." But perhaps even more important are the changes that may take place in the next 10 or 20 years. The Flathead River Basin Environmental Impact Study will provide some answers to "What needs to be done?" by supplying scientific resource and environmental information, and a much-improved ability to predict impacts. Taylor is a physical scientist for the Montana office of the Environmental Protection Agency (EPA) in Helena. He has spent 10 years with the EPA, the last three and one-half in Helena. Turn to "Preserving a Piece of the West" on page 2.

* * * * *

Dark, drooping wings. Featherless, snaky necks. Clumsy on the ground. Feeding almost exclusively on carrion. No, the turkey vulture is hardly a contender in the "easiest to like" category. Yet, as **Ken Walcheck** points out, the turkey vulture is the epitome of grace and floating beauty in the air. He writes, "No other bird commands greater mastery of catching rising updrafts (or thermals) and riding them." Turn to "Turkey Vultures: Nature's Sailplanes" on page 5.

Walcheck has also written a "fiction feature" for this issue. The cast of characters includes a sturgeon more than 100 years old with some suspicious carving on its bony plates, Walcheck himself, the Miles City and Glendive newspapers and some folks in that part of the world who needed convincing that a free-flowing Yellowstone River was worth fighting for. Turn to "The Miles City Sturgeon Incident" on page 20. Walcheck is the department's information officer for the Miles City region.

* * * * *

Irene Wreggelsworth writes: "My love affair with Montana started when we first moved to Helena and bought the old Kessler mansion, on the highway toward MacDonald Pass, and restored it. It has its own park with trees well over 100 years old. Every June, beautiful pear-shaped mushrooms called puffballs appeared, much to the delight of my husband Frank, my sons Jim, Bob and John and my daughter Amy. My children were taken mushroom hunting, practically since infancy. When they were too young to walk, I carried them. Adjoining the old house are acres of pasture, extending across Ten Mile Creek. Sometimes we went by foot, and other times we used our Tennessee walking horses in pursuit of wild fungi. We, of course, enjoyed an exciting meal afterward." Turn to page 11 for a personal and poignant recounting of mushroom gathering experiences, favorite species and some marvelous recipes that prove mushrooms are indeed "Fare Fit for the Gods." Mrs. Wreggelsworth and her husband now live in Meridian, Idaho, and *Montana Outdoors* is pleased to welcome her work to our pages.

* * * * *

"An experience on Wild Horse Island is a special one. Senses awaken, thoughts deepen and the serenity renews mind, body and soul. It is indeed a spot to nurture oneness with nature." So writes **Barbara Brown Lathrop** in "Wild Horse Island: A Natural Experience." Lathrop is a summer employee of the Department of Fish, Wildlife and Parks and three of her last five summers with the department have been spent as a ranger on the island. Her interests in photography, hiking and biology are well-served by her island summer home. During winter, Lathrop combines her love of skiing with employment at Big Mountain ski resort in Whitefish. For a look at the natural treasures to be savored by Wild Horse Island visitors, turn to Lathrop's article on page 23.

* * * * *

History lives on Wild Horse Island in the form of a 27-year-old Arabian stallion and a 36-year-old brown mule. They have roamed together for more than 25 years on the island, and today they are rarely, if ever, seen apart. For a fascinating peek at "Wild Horse Island: Where the Horse and Mule Roam Free," turn to page 26. The article was written by **Jane MacCarter**, with research for it by **Don MacCarter.** Now living in Lakeville, Minn., Jane is a market researcher with Ludlow Advertising in Minneapolis, and Don teaches wildlife management and medical microbiology. Jane holds a B.A. in journalism from the University of Montana in Missoula, and Don received his B.S. in wildlife biology from UM and his M.S. in wildlife management from Humboldt State in Arcata, Calif. He was a collaborator on Wild Horse Island research conducted by the Montana Cooperative Wildlife Research Unit. Wild Horse Island is a special place to both of them and they spend summers with their two children at the family cabin on the island.

* * * * *

In "Peaks, Parks Draw UM Students," **Cary Holmquist** outlines the opportunities available through the University of Montana Outdoor Resource Center (ORC). The center enables UM students to learn more about Montana's wildlands and rivers through both credit and noncredit classes and seminars. In addition, the ORC organizes tours which take students (and when there's room, non-students) to parks and outdoor areas in both the United States and Canada. As Holmquist writes, "The ORC operates its outdoor programs under the reasoning that it is important for students to gain a greater awareness and understanding of the state's natural resources and experience the introspectiveness that comes while in nature's vastness." Turn to his article on page 28. A public information writer for the University Relations office at UM, Holmquist was student body president at UM in 1979-80.

* * * * *

MO extends special thanks to:
- **Steve Wirt,** Whitefish.
- **Louis Kis,** Kalispell.
- **Dean Biggins,** Sheridan, Wyo.
- **Tony C. Caprio,** formerly of Missoula.

Discontent with winter?

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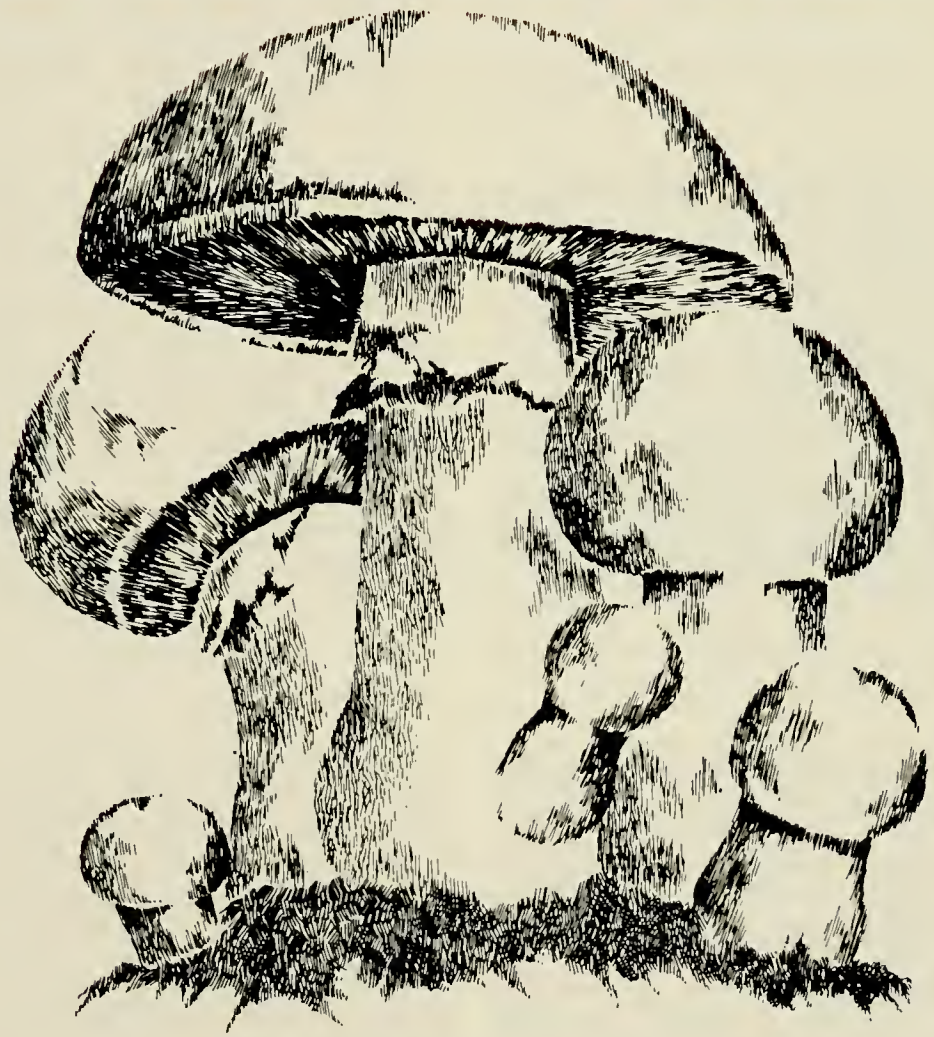
MUSHROOMS
Fare fit for the Gods



by Irene Wreggelsworth
illustrated by Donita Sexton

Mycology, the study of fungi, is a very exciting and absorbing subject. Mushrooms are a gastronomical celebrity. They have captured man's imagination wherever they have appeared. In ancient caves, drawings of fungi documented their importance. Primitive tribes were in awe of them, but when seeing a group of lovely mushrooms they could not resist

gathering them. Would they end up with a memorable feast, a mystical experience or agonizing death?

Poets described them as "foods of the gods" because they "magically" appeared after bolts of lightning. An old Mexican legend says mushrooms are the offspring of parents lightning and earth. Egyptian Pharaohs hailed them as culinary wonders; they were part of time-honored rituals, revered as the plant of immortality. Medical recoveries were attributed to their powers. A painting of a mushroom has recently been discovered on a mural from the tomb of Egyptian king Amenhotep, dating from about 1450 B.C.

The Greek doctor Hippocrates (460? B.C.-377? B.C.) was the first to supply details of using fungi in his medical practice. Theophrastus (370? B.C.-287? B.C.), who succeeded Aristotle as head of Athens Lyceum was hailed "Father of Biology" and he considered fungi as plants. He wrote, "Although they possess neither roots, stems, leaves nor fruit, fungi belong to the plant world."

In 1601, Carolus Cluius became the first scientist to publish a book dividing fungi into edible and poisonous categories.

Roman Emperor Tiberius promised to pay an exorbitant price for a poem glorifying the boletus. And Julius Caesar's selfishness regarding wild fungi is history. He decreed that common man was unworthy of such delicacies. The Romans judged the degree of esteem in which a guest was held by the quality of mushrooms served.

History suggests that Lucrezia Borgia might have availed herself of wild mushrooms in eliminating her adversaries. The European aristocracy of the time passionately loved gathering wild mushrooms. Ladies and gentlemen alike—beautifully attired, with silk gloves and followed by their maids—combed the forest, with elaborate containers in hand, in pursuit of this coveted prize. My own thoughts turn to the mushroom-hunting parties of Leo Tolstoy's Anna Karenina.

During the reign of Louis XV, chefs were so anxious to acquire wild fungi that they sent search parties to scour the countryside. Then a giant breakthrough came. Because of the demands for mushrooms for the King's table, they were cultivated in caves and abandoned quarries. The most famous was the limestone quarry near Paris. To this day, mushrooms are still called "champignon de Paris." The first modern cookbook including fungi was "Le Cuisinier Francais," written in 1651 by LaVarenne.

The early settlers of the New World brought their love for mushrooms from their homeland. Mushroom cultivation began as early as 1780 on Long Island, where the fungi were successfully grown on cellar floors. Splendid feasts were given and competition was keen. In colonial America, there were as many mushroom recipes as there were cooks. Soon after, a Pennsylvania farmer made an important discovery. He found clumps of pure white fungi, forerunners of the white mushrooms that still delight our palates.

FROM ONE TINY SPORE

Mushrooms are propagated from spores of infinitesimal weight found on the underside of mature mushrooms. The spores are so numerous that one rain can produce a billion spores. These can travel on the winds all over the world. If they are deposited in perfect condition they will start mycelia (or spawn) and eventually, mushrooms. A spore from Africa could produce a fungus in Maine.

In 1925, a group of German scientists proved that mushrooms cannot be obliterated by harvesting too many. There is no problem with extinction, as long as the natural forest is maintained. Only the forest floor can provide the organic matter on which the fungi depend. They cannot utilize sunlight and the carbon dioxide of the air. Because fungi are unable to produce chlorophyll, they totally rely on organic matter. They destroy or "eat" whatever they are feeding upon.

There are thousands of varieties of wild fungi, in all shapes, textures and colors: shades of red, lavender, violet, black, white, apricot, canary yellow, brown, blue and some even change their colors. Some have satin-soft caps, some feel like velvet, some are covered with slime, some have hairs and others are covered with warts. There is also a great variation in flavors.

Mushrooms have a definite odor, ranging from fruity to sweet to spicy, pleasantly flowery—or downright unpleasant. Some smell of anise, coal gas, soap, flowers, radishes, chlorine, cod liver oil, bitter almonds and even rotten fish.

In the United States, there are about 150 edible species. They thrive in a moist, warm environment—under logs, around trees, in wooded areas, on meadows and lawns, in city parks, near creek beds and country roads—wherever organic matter abounds.

Various species appear at different times; like other living things, wild fungi, too, have their seasons. The main harvesting begins in April and lasts until the end of June; a "second" season begins in September and extends to mid- or late October, depending on the weather. As you are hunting, sometimes a change of a few hundred feet in elevation will increase your chances of success and extend the season. A few species tolerate cold weather. Some even thrive with the freeze.

A FEW FAVORITES

The first mushrooms to appear in spring are probably oyster mushrooms. They can also be found in fall and winter. Oyster mushrooms *(Pleurotus ostreatus),* are found on rotten tree stumps, often cottonwood, where they grow profusely. Since their beginning season coincides with that of wild asparagus, try sautéing them with asparagus pieces and add to scrambled eggs. You will have a breakfast fit for a king (or queen).

The sight of a snow mushroom, also called walnut mushroom *(Gyromitra gigas),* peaking its head out of the snow is enough to make your heart beat faster. Found widely in mountainous areas with conifers, this is a delicious mushroom.

Morels belong to the genus *Morchella.* They are spring fungi which love rich soil and thrive in protected thorn and thicket areas. They are abundant in burned-over spots or where loggers have left caterpillar trails. In some years they appear in great abundance. In others, very sparingly, depending on how lavishly Mother Nature shares her bounty. The early morels are soft apricot in color, and they vary from ocher to grey or

Edibles

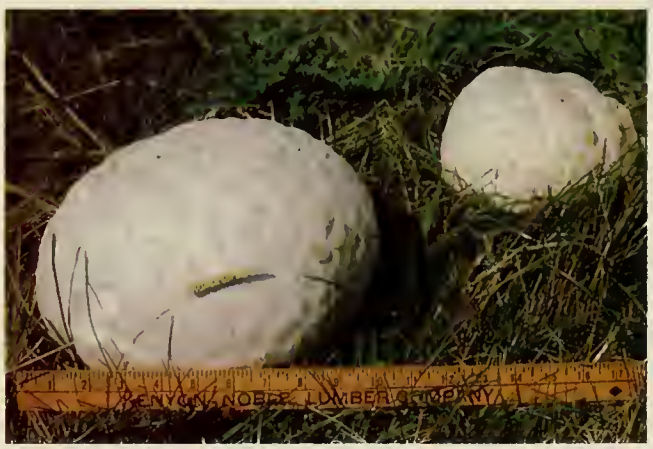
Golden chanterelle *(Cantharellus cibarius)*
This highly prized mushroom appears in fall, usually in mountain conifer stands. It can be identified by the narrow, yellow gills, the wavy-lobed cap margin, and the fragrant odor of dried apricots. A highly regarded edible in Europe, the golden chanterelle is also widespread in North America (photo: Frances V. Davis).

Fairy rings *(Marasmius oreades)*
This mushroom is common in grassy places (lawns, golf courses, pastures) in late spring and early summer. It is edible, but the stalks are tough and should be discarded. Legend has it that fairy rings originate where fairies dance during the night (DFWP photo: Roger Fliger).

King boletus *(Boletus edulis)*
This mushroom is characterized by a large, cinnamon to brown cap, and a white stalk. It appears in mixed woodlands from June to autumn. A highly edible mushroom, the king boletus is the main ingredient in several brands of imported mushroom soup (photo: Frances V. Davis).

Oyster mushroom *(Pleurotus ostreatus)*
This good-tasting mushroom is often found growing in large, overlapping clusters on hardwood stumps and logs (often cottonwood or alder). It is most abundant in late fall, but may also be found in the spring (DFWP photo: Tom Warren).

Inky cap *(Coprinus atramentarius)*
This common and widely used mushroom can be found in both spring and fall on lawns, among wood debris, and in grassy places where wood is buried. Alcohol should be avoided when eating this mushroom, since some people experience a form of intoxication known as "alcohol-disulfiram syndrome." When the inky cap matures, the gills "deliquesce" or dissolve, producing an inky fluid. For this reason, inky caps should be cooked soon after they are picked (DFWP photo: Jim Ford).



Puffball *(Calvatia* spp.*)*
The western United States has a variety of large puffballs. All are edible if white clear through and homogeneous in texture. Small puffballs should be sliced down through the top to make sure they aren't button stages of poisonous mushrooms (the form and gills of an embryonic mushroom indicate a mushroom button rather than a true puffball). Puffballs are especially good when sliced and fried like eggplant (DFWP photo: Jim Ford).

Recipes

Champignons à la Grecque
The French have given us the culinary description "à la Grecque" which generally refers to cooked vegetables prepared with oil, vinegar or lemon juice and seasonings, and served cold. Mushrooms are great favorites for this type of preparation. When marinated in this way, they are excellent for impromptu entertaining as they can be kept for several days in the refrigerator.

1 pound small fresh mushrooms
4 T lemon juice
salt to taste
1/2 c olive oil
2 garlic cloves, crushed
1 bay leaf
1/4 t dried oregano
3 sprigs parsley
4 peppercorns

Clean the mushrooms. Pull off the stems and reserve for another use. Cook the caps in salted boiling water to cover, with 1 tablespoon lemon juice added for 5 minutes. Drain and cool. Bring the remaining ingredients to a boil. Put the cooled mushroom caps in a jar. Cover with the boiled marinade. Leave, shaking now and then, 2 to 3 days in the refrigerator. Drain. Serve on toothpicks or small wooden skewers. Serves 8 to 10.

Mexican Tacos Filled With Mushrooms
In Mexico the typical appetizers, *antojitos,* literally "little whims," are sold at street stands, sidewalk cafes and just about every restaurant, so they can be enjoyed any hour of the day. One of the best is the taco, which makes an excellent appetizer when filled with these inviting ingredients.

1 pound fresh mushrooms, sliced
1 medium onion, chopped
2 canned green chilies, chopped
1 c shredded lettuce
2 large tomatoes, peeled and chopped
chili powder, salt, pepper to taste
tomato sauce (optional)
12 tortillas
hot shortening (lard or oil)

Combine the mushrooms, onion, chilies, lettuce, tomatoes, chili powder, salt and pepper and toss lightly. Moisten a little with tomato sauce, if desired.

Dip the tortillas into the hot shortening long enough to become limp. Remove with tongs. Spoon filling into each and fold over like a small sandwich. Serves 12.

Breakfast Braised Quail and Mushrooms

4 quail, cleaned
1/2 c (about) butter
1 pound fresh mushrooms, thickly sliced
1-1/2 c dry white wine
1/2 t dried rosemary
salt, pepper to taste
4 rounds buttered white bread

Brown the quail on all sides in the butter in a large skillet. With a slotted spoon, remove the quail to a warm platter. Add the mushrooms to the drippings, adding more butter if needed, and sauté for 4 minutes. Remove and set aside. Return the quail to the skillet. Add the wine, rosemary, salt and pepper and cook slowly, covered, about 30 minutes, or until tender. Return the mushrooms to the skillet 5 minutes before the cooking is finished. Remove the quail and mushrooms to a warm platter. Fry the rounds of bread in the warm drippings. Serve each quail over a fried round of bread. Spoon any remaining gravy over the quail. Serves 4.

Mushrooms on Toast from Germany
The Germans enjoy mushrooms in a number of inviting ways as ingredients for their appetizers, *vorspeisen.* This variation of *champignon-schnitt* may also be served as a first course or luncheon dish.

1 pound fresh mushrooms
1/2 c butter
juice of 1 lemon
1/4 c flour
1-1/2 c rich brown gravy
1/2 c dry white wine
salt, freshly ground pepper, grated nutmeg to taste
8 toasted firm white bread slices, crusts removed
fresh parsley, chopped

Clean the mushrooms and wipe dry. Slice. Heat the butter and lemon juice in a skillet. Add the mushroom slices and sauté for 2 minutes. Stir in the flour and half the gravy. Cook, stirring, 1 minute. Stir in the remaining gravy, wine, salt, pepper and nutmeg. Cook, stirring, about 2 minutes. Cut the toast into triangles and spoon the hot mushroom mixture over them. Sprinkle with parsley. Serves 4 to 6.

Italian Stuffed Mushrooms
An excellent accompaniment for meats or poultry.

1 pound medium-sized fresh mushrooms
1/4 c fresh lemon juice
1 c soft bread crumbs
3/4 c canned Italian plum tomatoes, drained and chopped
1/2 c minced prosciutto or ham
2 T Parmesan cheese, grated
1/2 t dried oregano
1 T parsley flakes
1 garlic clove, crushed
1/4 c olive or salad oil

Clean the mushrooms and gently pull off the stems. Use the stems for another dish. Dip each cap in lemon juice. Combine the remaining ingredients, except the oil, and mix well. Fill each cap with a spoonful of the tomato-bread crumb mixture. Arrange the stuffed caps in a buttered shallow baking dish. Sprinkle the oil over them. Pour a little hot water into the dish. Bake in a preheated hot oven (400°F) for 15 minutes. Serves 6.

Czech Fresh Mushroom Soup
In Czechoslovakia, both the Czechs and Slovaks are hearty eaters who cherish their national dishes. For such hard-working folk, soups are important fare and a beginning for most meals. Typical seasonings are those used here: caraway seeds, sour cream and dill. They combine with the flavor of mushrooms to make an interesting first course.

1/2 pound fresh mushrooms
3 T butter, 1 T flour
1/4 t caraway seeds
4 green onions, with tops, sliced
4 c beef bouillon
salt, pepper to taste
1 egg yolk
1 c sour cream, at room temperature
1 T fresh dill or parsley, chopped

Clean the mushrooms by rinsing quickly or wiping with wet paper toweling. Slice thickly. Sauté in the butter in a kettle with the caraway seeds and onions for 2 minutes. Mix in the flour to blend well. Gradually add the bouillon, stirring as it is added. Simmer, covered, for 30 minutes. Whip the egg yolk with a fork until creamy. Mix with the sour cream and dill. Spoon some of the hot soup into the sour cream mixture. Add to the soup, and leave over low heat, stirring, 1 or 2 minutes. Serves 6.

Mushrooms Italiano
For an easy-to-prepare antipasto, serve this flavorful dish with black and green olives, slices of salami, chunks of tuna, radish and caper-garnished, hard-cooked egg wedges.

1/2 pound fresh mushrooms
2 large tomatoes, peeled and chopped
1/2 c green pepper, minced
2 T fresh lemon juice
1/3 c chili sauce
1/2 t dried oregano
salt, pepper to taste

Clean the mushrooms. Pull off the stems and use for another dish. Slice the caps thickly. Combine with the other ingredients and leave to marinate at room temperature 2 to 3 hours. Serve as an antipasto or with crusty bread as an appetizer. Serves 2.

Oriental Peas and Mushrooms

1/2 pound fresh mushrooms
1 can (5 ounces) bamboo shoots
1 T peanut or salad oil
1 package (10 ounces) frozen green peas
2 t soy sauce
1 vegetable bouillon cube
1/2 c hot water
3 T cornstarch
1/3 c cold water
slivered almonds

Clean the mushrooms and slice from the round sides through the stems. Drain and slice the bamboo shoots. Heat the oil in a skillet. Add the peas and break apart with a fork. Add the soy sauce, bouillon cube, hot water, mushrooms and bamboo shoots. Cook, stirring often, for 5 minutes. Mix the cornstarch with the cold water and stir into the vegetables. Cook, stirring, until the liquid is thickened and the ingredients are cooked. Serve sprinkled with the slivered almonds. Serves 4.

Creamed Mushrooms

2 pounds fresh mushrooms
1/2 c butter
2 T lemon juice
1/4 c flour
2 c light sweet cream or sour cream
salt, white pepper to taste

Clean the mushrooms. Wipe dry. Sauté in the butter and lemon juice in a large saucepan for 4 minutes. Stir in the flour and mix well. Gradually add the cream and cook slowly, stirring, until thickened. Season with salt and white pepper.

Lithuanian Herring-Mushroom Appetizer

2 medium onions, sliced
3 T shortening (lard or other shortening)
2 c sliced mushrooms, canned or fresh
freshly grated pepper
4 pickled herring, sliced
2 T fresh dill or parsley, chopped
sour cream (optional)

Sauté the onions in the shortening until soft. Add the mushrooms and sauté 4 minutes. Season with pepper. Cool. Mix with the herring and serve cold, garnished with the dill. Serve with sour cream, if desired. Serves 4.

Mushroom and Crabmeat Canapés

1 c cooked, diced mushrooms
1 c cooked flaked crabmeat
3-4 T mayonnaise
6 drops onion juice
1/4 c Parmesan cheese, grated
cayenne, salt, pepper to taste
18 small rounds lightly toasted white bread
butter
mustard

Combine the mushrooms, crabmeat, mayonnaise, onion juice, Parmesan, cayenne, salt and pepper; mix well. Spread each round of bread with butter and mustard. Top with some of the crabmeat mixture. Serve cold or heat in a hot oven (400°F) about 10 minutes. Serves 6 to 8.

Hungarian Mushroom-Filled Eggs

6 hard-cooked eggs, shelled
1/2 c finely chopped mushrooms, fresh or canned
2 T butter or margarine
1 t paprika
salt, pepper to taste
1/2 t dry mustard
3 T (about) sour cream
chopped chives or green onions

Cut the eggs in half lengthwise. Remove the yolks and mash. Sauté the mushrooms in butter for 3 minutes. Add the paprika and sauté 1 minute. Season with salt and pepper. Add the mashed egg yolks, mustard and enough sour cream to bind the mushroom mixture. Spoon into the egg shells, shaping the mixture into a mound on each egg half. Garnish with the chives. Serves 6. Serve as an hors d'oeuvre or on lettuce leaves as a first course.

brown. The cap, which can be round or conical, is always pitted with small cavities. Because of the honeycombing, they are rather easy to identify. These succulent pine cone-shaped tidbits are among the finest edible fungi.

For centuries, fairy rings *(Marasmius oreades)* have awakened people's imaginations and aroused their suspicions. It was thought that fairies danced all night; wherever their feet touched the ground, mushrooms magically appeared. Fairy rings are abundant in meadows, grassy plots, lawns, golf courses and pastures. They are among the species most successfully dried.

The horse mushroom *(Agaricus arvensis)* has an interesting characteristic. It seems to grow best after a storm accompanied by heavy lightning. If, after such a storm, you find many fungi growing in a large circle in the hills, you might have come upon a horse mushroom. It has an aroma like anise (licoricelike). Older species become distinctly yellow. I have had great success finding them in the Philipsburg, Montana area.

June or July are the best months for finding puffballs. They vary from 2 to 24 inches across and occasionally weigh 40 pounds or more. Puffballs are edible as long as a lengthwise cut shows the interior is firm, pure white, the consistency of cream cheese and has no indications of stems or gills.

The meadow mushroom *(Agaricus campestris)* appears in profusion after a summer rainstorm. It looks like the commercial white mushroom but has a far stronger, better flavor. The meadow mushroom is a great favorite of many gatherers. It has a silky, white, rounded cap, a short, white stalk and a ring around the stem. The gills are a delicate pink and darken as the mushrooms mature, to almost a dark brown. It grows in late summer, particularly where horses grazed the year before. They are being cultivated on a large scale—the commercial mushroom found in most stores today stems from a field mushroom. The technique lies in injecting the mycelium in a bed of compost; after a period of incubation, about one month after inoculation, fruiting bodies appear. They don't grow only in caves and tunnels, but also thrive in greenhouses, cellars or garages. In fact, the type of place chosen is relatively unimportant. In my student days, I grew them in a clothes closet. The ability to provide humidity and a suitable organic substratum free from parasites is essential. You must recreate conditions like those in which field mushrooms flourish in nature.

You cannot easily mistake the *Boletus edulis* for any other mushroom, and it is among the most nourishing of all edible fungi. When you find imported dried mushrooms, chances are you are eating a king boletus. It is the main ingredient in several brands of packaged mushroom soups. The *Boletus* appears in mixed woodlands from June to autumn. The boleti have a layer of spongy tubes when they become mature. These tubes should be discarded before cooking.

The shaggy mane or lawyer's wig *(Coprinus comatus)* is a short-lived fungus which is easily recognized. It can be found in spring and fall, although it is more prolific in the latter. It is a delicate, watery fungus, of fragile structure. As these mushrooms mature, they soon turn into a mass of black spores, which makes them inedible. The young, firm specimens are delicious. My favorite way of preparing them comes from Austria where my countrymen are known for their love of "schnitzels," usually made from veal or pork. I stuff these mushrooms with ham and cheese, dip them in flour, eggs and bread crumbs and deep fry.

No hunt is complete without finding the yellow coral *(Ramaria aurea)*. This mushroom is a welcome sight in the forest. Morels are very often found in the same vicinity.

I am a great fan of the exquisite golden chanterelle *(Cantharellus cibarius)*. A sought-after fall treasure, this mushroom has been a favorite of Europeans for centuries because of its recognizable shape, abundance and outstanding flavor. The chanterelle sports a uniform rich egg-yolk yellow color and has a pleasant smell of apricots. The gills of the chanterelle are like small veins which fuse and split in an irregular pattern. The chanterelle resides amidst rich moss, spongy mulch and fern, surrounded by conifers.

The fly agaric *(Amanita muscaria)* played an important role for the ancients. In German folklore, the *Amanita muscaria* was brought into the world every year when the god, Wotan, rode through the forest on a winter's eve, followed by his dogs and worshipers. It was believed his retinue was chased by devils. As they raced through the forest, the horses foamed at the mouth, while bleeding from their exertion. The following spring beautiful but poisonous red-capped mushrooms—the *Amanita muscaria*—appeared where the blood-flecked foam had fallen.

Before the season begins, it is wise to learn as much as you can about mushrooms. I prefer Dr. Alexander H. Smith's "The Mushroom Hunter's Field Guide," Orson K. Miller's "Mushrooms of North America," Edmund E. Tylutki's "Mushrooms of Idaho and the Pacific North-

Preservation

Drying—String firm, young mushrooms through the center of the stem and on through the cap. Make knots in the string at one-inch intervals so the mushrooms will be separated by that amount of space. Place on a large sheet of paper, or hang in hot, dry air for two days. If you use an electric food dryer, be certain to turn the mushrooms as often as possible.

Freezing—To freeze mushrooms successfully, they must be firm and fresh. Place them, unwashed, in freezer containers and seal; they will keep for approximately one month. Another method is to sauté them until they are half-cooked, about two or three minutes. Let cool, then freeze. They will last longer and taste more like fresh. To use, defrost, rinse quickly in cold water (but don't let them soak) and wipe them with a damp cloth. Never peel the mushrooms because much of the flavor and nutrition lies in the skin.

Cooking—Mushrooms require little cooking. Whole mushrooms cook in four or five minutes; sliced, quartered or chopped, they require less time. In dishes requiring long cooking—such as stews and casseroles—add raw mushrooms about 10 minutes before the dish is to be taken from the stove.

Edibles

Meadow mushroom *(Agaricus campestris)*
This choice species can be found most often in meadows, pastures and similar grassy places. It is most abundant in late summer and early fall, especially after late summer rains on the eastern Montana prairies. Note the creamy white cap and characteristic pink to brown gills (DFWP photo: Jim Ford).

Horse mushroom *(Agaricus arvensis)*
This delicate mushroom is found in conifer stands in Montana. Look for the greyish-pink gills, an anise (licoricelike) odor, yellow staining and cottony white scales on the stalk (graphics: Donita Sexton).

Coral mushroom *(Ramaria* spp.*)*
The coral fungi appear as erect, intricately branched fingers. They do not have a "cap" like most mushrooms. The yellow coral mushroom, common in spring in mountainous parts of the West, is highly edible. *Ramaria formosa*, however, a species of coral fungus with orange-red branches, is poisonous (DFWP photo: Donita Sexton).

Shaggy mane *(Coprinus comatus)*
A common and distinctive mushroom, the shaggy mane is easily identified. It is abundant in late summer and fall on lawns, playing fields and along roadways. Like the inky cap, the shaggy mane should be eaten soon after picking; specimens left in the refrigerator overnight will deliquesce (DFWP photo: Mike Aderhold).

Morel *(Morchella* spp.*)*
The morels are probably the best known and most sought-after of the edible fungi. The brown, chambered top, which resembles a pine cone, is composed of ridges and pits. Morels fruit in the spring in a variety of habitats; river bottoms and burned-over areas are good places to look (DFWP photo: Tom Warren).

Snow mushroom *(Gyromitra gigas)*
This common mushroom is a member of the group known as "false morels," some of which are toxic. Often found near melting snowbanks in mountain conifer stands, the snow mushroom is a choice edible. It should be collected only in the spring, never in summer or fall (graphics: Donita Sexton).

west," besides various books on the subject from my native Austria. **Do not ever take a chance with wild mushrooms.** If you are a novice mushroom hunter, take along several reputable field guides and always hunt in the company of a reliable, experienced mushroom enthusiast. Your companion should be able to point out the differences and similarities between edible and poisonous species. Whenever I accompany a group of novices, I make it a habit to examine each mushroom personally after we return and before we partake of our bounty, thereby assuring that no mistake can be made. When trying a new species you have not eaten before, eat only a small amount in case you might discover an unknown allergy. Don't drink alcohol before eating the inky cap *(Coprinus atramentarius).* The alcohol could combine with a substance in the mushroom and cause increased heartbeat, decreased blood pressure, violent headaches, nausea, vomiting and dizziness.

Don't pick old or blemished mushrooms; they are more likely to contain larvae and be less firm. Many edible varieties become poisonous with advanced age. The *Amanita phalloides* or "death cap" is said to be the most delicious of mushrooms and almost always fatal. Young specimens are completely clothed in white, egg-shaped membranes which rupture as they grow. The cap is slightly slimy, round and almost flat; the color is yellowish-olive, sometimes almost white. The mature fungus smells unpleasantly. Just recently, the hospital Beaujon in Paris saved a young woman who had eaten the "death cap." One physician had the idea of passing her blood through an artificial liver. After four times on the machine, she began to recover. This is the singular case where a patient having consumed this mushroom has survived.

Keep the mushrooms out of the sun! Each time when returning to the car, place the mushrooms in coolers to prolong their flavor and nutrition.

Inky caps and shaggy manes should be cooked soon after they are picked because they deteriorate rapidly; you will be left with a pool of black liquid if you keep them even overnight in the refrigerator. With most other species, if you can't process the day's picking immediately, place the mushrooms in a basket, on a shallow tray (not metal) or in a shallow pottery bowl and cover with a lightly moistened paper towel. Place in the refrigerator so air can circulate freely around them. Moisten the paper toweling each day and they will keep for several days.

In addition to the joys of gathering them, mushrooms are nutritious: They are high in pantothenate, B vitamins and proteins, low in sodium and fat, and contain only 66 calories per pound.

It is known that the Japanese have grown a certain fungus named "Shii-take" for almost 2000 years by inoculating newly cut logs of wood from others already infected and then stacking them in a suitable moist and shady place until mushrooms appear. Several wild varieties are now successfully grown in Germany, enabling people to taste wild fungi all year around. They include the oyster mushroom, the edible stump fungus and others. A spore starter kit can be purchased for commercial or hobby purposes in the following German export houses: Burbacher Pilzfarm Am Denkmal 14, 5909 Burbach, West Germany; Holzhausen and Hornberger Pilzlabor, Werderstrabe 17, 7746 Hornberg/ Schwarzwald, West Germany.

Spring is just around the corner. Don't miss the opportunity to explore the natural world. A hunt for mushrooms in our beautiful forests is manna for the soul as well as nourishment for the body. Happy hunting!■

Poisonous

Inocybe spp.
Most, if not all, of these small, brown, woodland mushrooms are poisonous and should be avoided. They contain muscarine, a toxin also found in the highly poisonous *Amanita* mushrooms (photo: Tony C. Caprio).

Amanita spp.
While there are some edible species of *Amanita* in North America, most are poisonous. These pretty mushrooms have accounted for the majority of fatalities attributable to mushrooms. *Amanita muscaria* the "fly agaric," is common in summer throughout the West, especially under aspen and pine stands (DFWP photo: Mike Gurnett).

Readers Respond

You Can't Be Too Careful

I am probably not the first (*somebody* has to be last) to point out what I presume is an editorial boo-boo on pages 28-29 of your Nov./Dec. 1981 issue.

At the top of the page, there is a quotation which starts, "Conservation is a state of harmony between men and land...." It is attributed to William A. Breyfogle. I do not happen to be acquainted with Mr. Breyfogle, but I am very familiar with the quotation, as I am sure many of your readers are. The words come from the most quoted conservationist of our day, Aldo Leopold. This particular gem is extracted from his "Essay on Conservation," first published in "Round River" (Oxford Press, 1953, page 145, edited by Leopold's son, Luna).

Incidentally, the Special Pictorial Issue is a stunner!—*Charles C. Bradley, Bradley Study Center, Leopold Memorial Reserve; Baraboo, Wis.*

* * * * *

Thanks for an excellent pictorial edition. There was one quote, however, that caught my eye. It begins, "Conservation is a state of harmony between men and land...." You have attributed these wonderful words to William A. Breyfogle, but I have also seen them in Aldo Leopold's "Round River" essay in "A Sand County Almanac."—*Susan Swan; Bedford, Wyo.*

* * * * *

• *The "Breyfogle incident" proves, once again, that an editor can never be too careful. We took the "Conservation is a state of harmony...." quote from a book titled "Speak to the Earth," a collection of quotes dealing with conservation (Hallmark Cards, Inc.; Kansas City, Mo., 1972). In that book, the quote was credited to William A. Breyfogle.*

Further checking revealed the Breyfogle quote had originally come from a book of the same title—"Speak to the Earth"—written by Breyfogle and published by The Macmillan Company, New York, in 1961. The book was edited by LeRoy H. Dreher from manuscripts left after Breyfogle's death in 1958. There is no attribution, and it appears Dreher believed the quote to be the work of Breyfogle. An attempt to reach Dreher through the address in the introduction to "Speak to the Earth" was unsuccessful. (Breyfogle was a writer who dealt mostly with natural history and human ecology. He attended Dartmouth and Oxford, wrote two books—one published in 1956 and the other in 1958—and many short stories and ballads.)

In an attempt to uncloud the situation, we wrote to Dr. Susan Flader (professor of history at the University of Missouri, Columbia, and a foremost Leopold scholar) and to Macmillan Publishing Co., Inc.

Dr. Flader pointed out that all sorts of problems result when material is edited after the writer's death and that it was too bad "that Leopold had to slip in to your special issue through the back door in order to join the distinguished company of eloquent spokesmen for the conservation of wildlife represented in this issue. I would have thought he would have been one of the first through the door."

Macmillan's contract for "Speak to the Earth" was made with the author's widow, and there was no mention of the introduction by LeRoy H. Dreher. "Therefore," the letter said, "we have no address for him or any other information relating to the material quoted."—Ed.

Enjoys Aller's Work

Being frequent vacation visitors to your beautiful state, we all really enjoy the arrival of *Montana Outdoors*. Of special joy to us was finding a painting by Steve Aller in the Jan./Feb. 1982 issue. We have seen Steve's work before and witnessed his love of wildlife through a prairie falcon named Rattler.

Here's hoping we see more in the future, and keep up the super work.—*The Dennis Gooch Family; Des Moines, Iowa*

Fond Memories of CCC

The article by Ken Karsmizki (July/August 1981) on the development of the Lewis and Clark Caverns with the help of the CCC reawakened a fond memory of the time I spent as a member of a CCC company in 1939.

After having spent four days and five nights on a troop-type train eating and sleeping under the most dire conditions, we detrained at 5 a.m. on a cold April morning at Philipsburg, Mont. We piled into trucks and were taken to our campsite, Flint Creek Ravine in Deerlodge National Forest.

The setting was just breathtaking to a young lad from the streets of New York City. The six months that I stayed and worked in Montana are cherished. One of our major projects was construction of Black Pine Road, along with its fire watch tower and the accompanying telephone line.

My subscription to *Montana Outdoors* is a gift from my nephew and his wife, who live in Helena. I always look forward to the magazine's arrival.—*Paul D. Porrini; Elmont, N.Y.*

More Plaudits for Pictorial Issue

Your Special Pictorial Issue (Nov./Dec. 1981) is really an eye-catcher. The bighorn sheep group by Jon Cates and the sparring elk by Bill McRae are both rare moments to be captured. Another of my favorites was Jim Romo, who took photographs of the hoary marmot and the plains cactus. I have also noticed his work in previous issues.

I hope you plan on having another pictorial issue and that you make it an annual thing.—*Penny Ryder; Froid, Mont.*

* * * * *

I thought your Nov./Dec. issue was absolutely excellent. The pictures were magnificent, and the selected texts were carefully chosen.

I would like to have two additional copies to pass on to my friends—who I know will enjoy them so much.—*Robert C. Hendon; Nashville, Tenn.*

* * * * *

Enclosed is a $5 check. Please send me five additional copies of the striking Nov./Dec. pictorial issue.

This is the most fabulous set of photos I have ever seen, and I want some of my friends to have copies to enjoy and show.—*James A. Shafer; Libby, Mont.*

* * * * *

Since leaving Montana eight years ago to study law in California, I have told many people of my desire to return to that land of majestic beauty.

Having just received the Nov./Dec. Special Pictorial Issue, I can now share

with my friends the splendor that has caused me to look forward to the day of my return.

Thank you for putting those words and pictures together and sharing the need to conserve today to preserve tomorrow.—*M. James Podva; Sacramento, Calif.*

Historical Footnotes

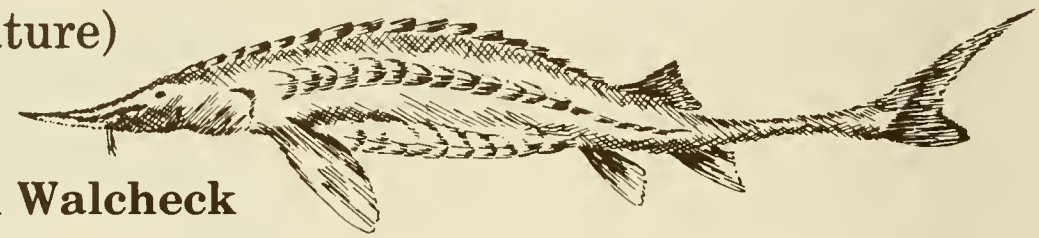
While checking on some Fort Benton history, I recently ran across an item in the Dec. 16, 1896, River Press which originated in the St. Louis Republic. A note said the item was understood by the Great Falls Tribune to refer to the trout caught "last summer" by Dr. J.A. Sweat in Highwood Creek. The Republic said the mounted fish, the "largest known specimen of brook trout," was on display in St. Louis and weighed 13½ pounds when caught and was exactly 33 inches long. (If an eastern brook trout and not a cutthroat, the fish would have been a record, perhaps until that 14½ pounder was caught in the Nipigon River in Ontario in 1916—see *Montana Outdoors*, May/June 1979.)

Incidentally, the Missouri River at Fort Benton was a prolific producer of catfish and sturgeon in the early 1890s. In 1890, George Worth and partners were seining and shipping 1,000 to 1,250 pounds of fish to Helena in spring season about weekly—and Charlie Rowe one day caught 124 catfish weighing from one to six pounds. About the last commercial fishing here was in 1893 when John Hammer netted a 46-pound sturgeon, according to the River Press. The following year, there were repeated complaints about the growing scarcity of fish in the river, and residents attributed the scarcity to the smelter at Great Falls. By 1901, few fish were left.

One other note: In May 1895, the Press said German carp were "now being caught" here and that the species "was stocked above the falls 2-3 years ago."—*Joel F. Overholser, River Press Publishing Co.; Fort Benton, Mont.*

The Miles City Sturgeon Incident

(A Fiction Feature)



by Ken Walcheck

• The following story, although fictitious, does contain an element of truth. Because of the actions of certain people—people who are not fictitious—the Yellowstone River still runs strong and free. Hopefully, it can always be so.

* * * * *

It felt like I stepped into a furnace when I left the Miles City regional Department of Fish and Game office at the end of a blistering day in May 1976. Unseasonably warm weather had flooded the southeastern part of the state and it matched my depressed mood.

I was dejected because I had not made much progress in promoting the recreational attributes of a free-flowing Yellowstone, nor had I done very well in selling the merits of the department's proposed request for an instream reservation of water. The concept of instream reservations, as provided by the 1973 Montana Water Use Act, was quite new and many folks were unconvinced of the legitimacy and necessity of assuring that adequate water be left in the stream to maintain fish, wildlife, water quality and recreational values. Even though I had talked to numerous groups and had written scores of articles on the Yellowstone, I still was not convinced that I had really done the job. I had exhausted all of my ideas and none of my colleagues had any further suggestions.

On such occasions, fishing has always provided good therapy. I retrieved my fishing gear from the car and walked down to the mouth of the Tongue River, less than a mile from the office. Baiting my hook with a lively night crawler, I flipped it into a backwater eddy and sat down on a driftwood log. As I watched the river slide by, the somber beauty of the area overwhelmed me.

After a few minutes, my depression vanished with the whisper of moving water and the heavy scent of a living river. I thought of noble waters such as the Yellowstone as cleansers—rivers that dissolve the girdered apprehensions and armored courtesies that weigh down our urbanized lives. A river such as this could liquefy the crust of caution and allow one to become as serene and airy as a damselfly.

My daydreaming was shattered by a loud splash from a large pool in front of me. My mouth dropped as I saw the back of a huge fish studded with large, bony plates break and churn the murky water with its sharklike tail. Reaching for my rod, I was sure I had hooked a pallid sturgeon because its length was easily that of a fence post.

Pallid sturgeon are quite rare in eastern Montana and this unique fish would make a good story, especially if I included a picture of my catch. After a series of surging runs, the fish finally tired. Fearing that I might lose the sturgeon if I tried to beach it from shore, I waded into the river, grabbed the tail of the fish and dragged it ashore.

Tying up the sturgeon and anchoring the stringer to a stout cottonwood root, I headed back to the office to get my camera. It was then the idea hit me. A broad grin swept across my face and I burst out laughing as the novelty of the idea came home to roost. A good friend of mine, a reporter for the local Globe, would be more than happy to start the ball rolling.

The next day, splashed on the front page of the Globe, the following article appeared:

> A relic pallid sturgeon, surpassing 100 years in age, was caught out of the Yellowstone River by the regional information officer for the Department of Fish and Game. The 62-pound sturgeon, largest ever caught in eastern Montana, is believed to have traveled an incredible distance of nearly 600 river miles, from the mouth of the Judith River on the Missouri to the mouth of the Tongue River.

> On the sturgeon's bony plates is carved "Matt Duncan—Camp Cook—1867."
>
> Camp Cook was built in 1866 about one-half mile above the mouth of the Judith and was the first permanent military establishment in Montana.

I thought the article would stir some excitement, but the interest it created went far beyond my wildest expectations. Our office telephone rang incessantly and dozens of people stopped by to ask about the giant sturgeon. The local TV and radio stations also sent mobile units out to the office to do feature coverage for evening news programs. This attention gave me an excellent opportunity to further open the door and talk about the merits of the department's request for an instream reservation as well as recreational opportunities on the Yellowstone.

Like a Montana dust devil, the story gathered momentum and swept through the prairie counties of eastern Montana. Despite the good publicity, I was nagged with the inescapable question raised by dozens of people: "Where's the fish?" I countered with: "We're doing some physiological monitoring on the sturgeon. We don't get an opportunity to conduct tests on old-timers like this very often. We'll get back to you as soon as we can."

That same week, a paper in downstream Glendive, the Ranger, picked up on the excitement and a reporter wrote:

> An upstream Yellowstone Valley newspaper, the Globe, recently reported that a mammoth pallid sturgeon was caught out of the Yellowstone at the mouth of the Tongue River by a Fish 'n' Game employee. The article mentioned that the fish had a name and date carved on its bony plates back in 1867.
>
> The Ranger finds it a little strange that no photo accompanied the article. We are wondering if the Fish and Game Department is trying to bolster its fishing license sales?
>
> Furthermore, why hasn't anyone seen the fish?

The Ranger was partially right in its assertion about license sales. The sale of fishing licenses increased, but it was nothing to get excited about. There was a slight problem, though, with some of the local fishermen. They started to rib me about the "phantom sturgeon." One old-timer hooted, "What are you Fish 'n' Gamers doin'? Milking the sturgeon for its eggs to start a caviar factory?"

The following week, a large 8- by 10-inch photo of the sturgeon, clearly showing "Matt Duncan—Camp Cook—1867," appeared in the Globe. The caption read: "Some Miles Citians and a lower Yellowstone River basin newspaper, the Ranger, have expressed serious doubts as to the existence of the large sturgeon recently caught in the Yellowstone River. The Globe would like to comment that a good picture is still worth a thousand words."

The Globe's photo of the sturgeon stirred a current of excitement not seen for a long spell in old Miles town. Fishing license sales skyrocketed and the town buzzed. An upstream rod and gun club in Forsyth got on the bandwagon and emphasized at the monthly meeting that the Yellowstone was a main artery producing a quality and relatively stable habitat for a large variety of fish and wildlife. The club also went on record stating that members would stand shoulder to shoulder, and reinforce, brick by brick, the department's request for an instream reservation that would ensure the Yellowstone's free-flowing condition.

The Ranger's editorial comments the following week added some additional spice to the growing controversy:

> The Ranger would like to report that there are lots of sturgeon in the Yellowstone River, as well as lots of cameras in the Yellowstone vicinity. There are also lots of fishermen with knives capable of carving letters into a sturgeon's bony plates. Furthermore, there is the small problem of how this particular sturgeon managed to get by Fort Peck Dam which was built back in the 1930s. We smell something fishy.

When I returned from an out-of-town meeting a few days later, one of the directors of the Glendive Chamber of Commerce called to say: "Looks like your card has been called by the Ranger, Kenneth. We're betting they're right and you're telling a fish story and, I might add, one of the biggest I've heard in a long time."

Even the local folks started to needle me. "Where's the fish?" they demanded. Part of the problem focused on an intense football and basketball rivalry that had been going on for years between the two towns. It all boiled down to the fact that the locals didn't want to come out second-best in this skirmish.

I decided it was time to lay down a few cards. Not all of them, but at least enough to keep the readers dangling on the string awhile. Marching down to the Globe, I talked to my reporter friend and convinced him there was more on the line than just a fish story. The following evening, this appeared:

> The Department of Fish and Game will conduct an open house Saturday afternoon at the U.S. Fish and Wildlife Service Fish Hatchery west of town. Studies on the giant sturgeon have been completed and the fish will be displayed at the hatchery rearing pond at 1 p.m. The department would like to extend this invitation to the public to view a rare sturgeon that was swimming the murky depths of the Missouri when our 17th President, Andrew Johnson, was in office. For those of you who have doubted the sturgeon's existence, the viewing will prove once and for all that the Globe did not participate in any hoax. We regard the opportunity to see this living fossil as a rare treat for young and old alike.

I knew the sturgeon had stirred up a lot of interest, but even I was not quite prepared for the crowds that arrived Saturday. Traffic was lined up for more than a mile and local and state police were called on to help direct traffic. Near the head of the line was a large Greyhound bus packed with Glendive residents.

By 2 p.m., the crowd had swelled to

Wildlife Shorts

The rodent order contains approximately one-third of the named species of mammals.

* * * * *

Many people think that dragonflies sting. This is untrue, however, because these darting, shining, needle-shaped insects are stingless.

* * * * *

Crickets make their far-carrying calls in the late summer nights by rubbing together the bases of their wing covers.

* * * * *

Believe it or not, snails have survived after being frozen at temperatures of minus 50°F.

* * * * *

The young of all placental mammals are covered by a membrane at birth. This membrane renders even little porcupines slippery immediately after birth—*Vince Yannone, youth educator, Conservation Education Division.*

more than 1,000. We felt the time was ripe for the showing. Using a heavy-duty seine, four of us moved the large-webbed, vertical net through the water in the small rectangular pond. We pushed the fish to the end of the pond where it surfaced like the Loch Ness monster and exposed its greyish-blue longitudinal rows of bony shields.

"There it is, by golly!"

"Look at that thing, would you? Biggest doggone sturgeon I've ever seen!"

"Where's the name and date?"

Plainly visible to those standing close enough was: "Matt Duncan—Camp Cook—1867."

"Well, by gosh, it's just like the Globe said it was!" shouted a local businessman. "What are you going to do with it?"

I yelled back that we planned to return the fish to the Yellowstone River that afternoon and we would welcome all of those who wanted to come along and watch. I might add that we availed ourselves of every opportunity to talk about the Yellowstone and the wildlife communities it sustained. We also emphasized the importance of understanding Montana water laws, how they provided protection for the river, and the importance of an instream reservation.

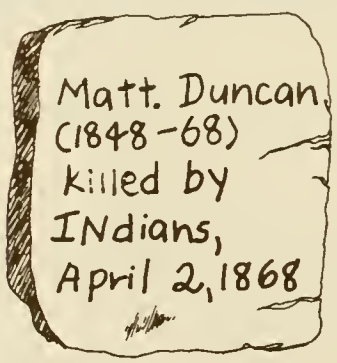
I really wasn't too surprised when I read what the Ranger had to say about our open house:

> The Ranger would like to point out that the old P.T. Barnum slogan, "There's a sucker born every minute," still holds in 1976. This was well-demonstrated when the Fish and Game Department unveiled its mystery sturgeon to a very gullible public. Although more descriptive language is needed, the only appropriate word the Ranger can think of to describe the perpetuation of this gigantic hoax is HORSEFEATHERS!!
>
> We would like our readers to know that any Tom Sawyer with a lively imagination and who knows his ABCs and a little history could carve a set of letters on a sturgeon's bony plates.
>
> Furthermore, we believe there never was a Matt Duncan, and the whole incident is nothing more than a Fish and Game shenanigan designed by the regional information officer to sell more fishing licenses.

The Ranger certainly was right about the license sales. They soared. In fact, a couple of local license dealers called our office to notify us they were running short. I also knew the time had come to play my trump card—the one I had been patiently nurturing.

Sitting down at my desk, I typed an article which appeared in the editorial column the following evening:

> "HORSEFEATHERS!!" My Foot
>
> Did that touted "fictitious" sturgeon alluded to in the last edition of the Ranger really travel 600 river miles, all the way from the Judith River in Fergus County to Miles City?
>
> Obviously, there's no way of proving this to the complete satisfaction of everybody, especially to some downstream doubters, but we have some strong circumstantial evidence which proves this is no fish story.
>
> We checked the Department of Fish and Game's historical fish records and found that in 1876, a Professor E.D. Cope collected fishes in the Missouri River near Fort Benton and the mouth of the Judith River. One of the fish Cope reported sampling was a 47-pound pallid sturgeon. This indicates there were pallid sturgeon in the Missouri River at that time. We also wrote to the Military Records Department in Washington, D.C., and asked if they would check their archives to see if there was such a person as Matt Duncan who served in the military at Camp Cook in 1867. We were informed that a Pvt. Matthew Duncan was assigned to the 13th U.S. Infantry at Camp Cook in 1867, deserted the following spring and was subsequently killed by Indians about three miles north of Camp Cook.
>
> As further proof, a photo was mailed to us by a history professor from the Montana Historical Society showing a headstone he photographed while visiting an old stone warehouse on the PN Ranch, near the Camp Cook site. The inscription reads: "Matt. Duncan (1848-68) killed by Indians, April 2, 1868."



I asked the Globe to print the professor's picture of the headstone and they did so. The photo turned out to be the real clincher because it was next to impossible to refute that kind of evidence. There wasn't even a rebuttal by the Ranger.

* * * * *

Nearly six years have passed since the sturgeon incident at the mouth of the Tongue River. Although I have confided to my colleagues and certain employees at the Globe what really happened in '76, I don't think anyone else ever caught on that the sturgeon incident was a little fishy. Fishy or not, I would like to point out that I *did* catch a large sturgeon and there really *was* a Matt Duncan killed by Indians just north of Camp Cook. I knew this because I float the Missouri every summer with a college workshop and we always stop at the PN Ranch to look at the Duncan headstone. I was fairly sure there would be a military record of Duncan if someone wanted to check. Furthermore, there really was a Professor Cope who sampled fish in the vicinity of the Judith River in 1876. I must admit, however, that I embellished the story a bit with my pocket knife.

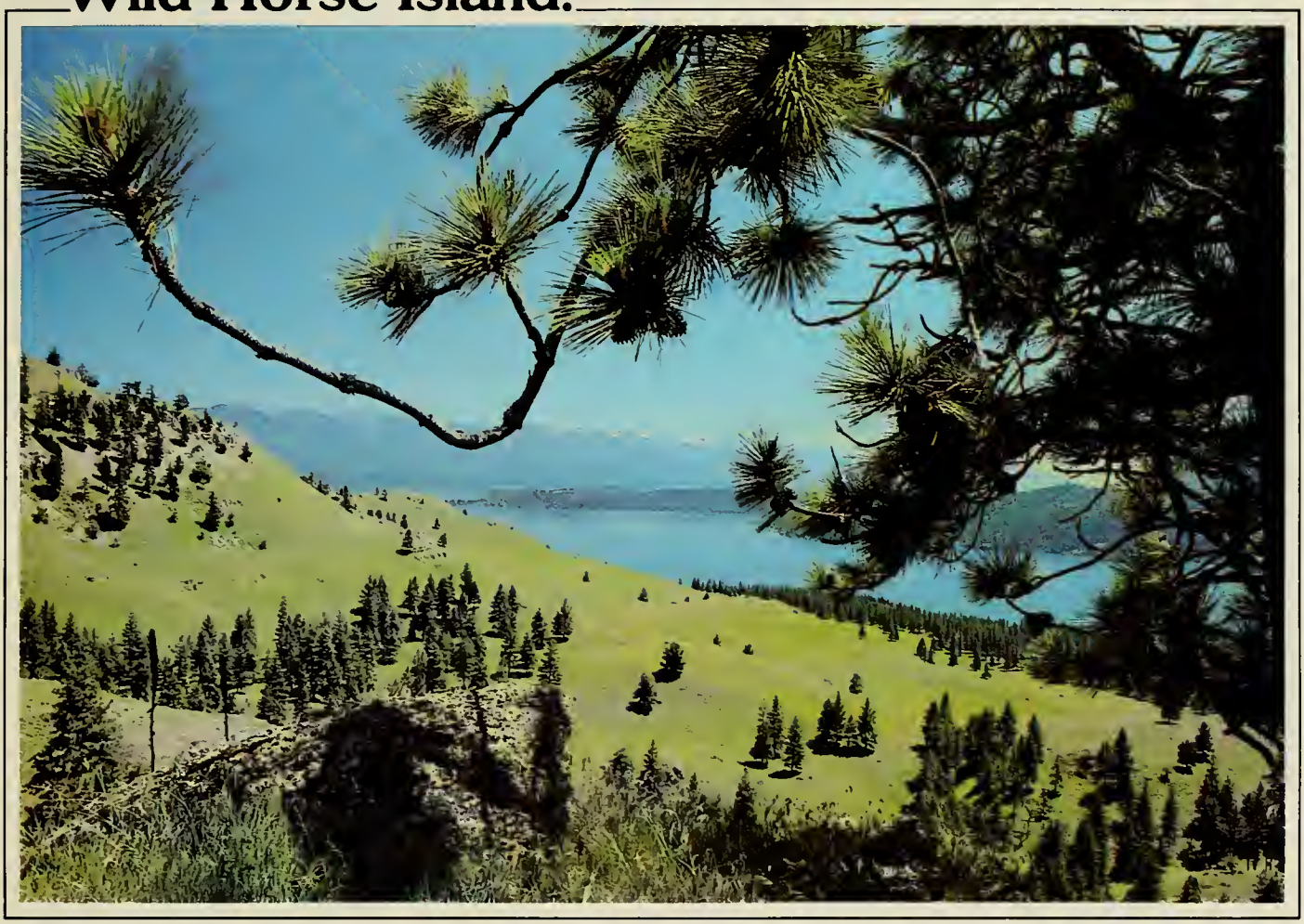
As far as the 100-plus-year-old sturgeon—admittedly, that is a little old for a fish. Yet, with ancient denizens of the deep, who really knows?

Some would say I dealt my cards under the table in pursuing the goal on which I had set my sights. Perhaps so. Yet more people are now aware of the true value of the Yellowstone—its value to the people of Montana, to the wildlife communities of the river and to the spirit of the river itself. More important, the river no longer lies totally vulnerable to unrestricted depletion.

This country has been swinging the hammer of development long and hard. Perhaps the day has finally come when we are starting to remember the cause of free-flowing rivers.

If our sturgeon played a small role in achieving this goal, then I hope it returns to visit us again someday. Who knows, further persuasion may have to be given to Montanans who fail to recognize that the Yellowstone does not have to follow every other major American river into dams, locks, dikes and other forms of change—alterations that would surely harness the river's freedom and drain its strength.■

Wild Horse Island:



Wild Horse Island (photo: Don MacCarter)

A Natural Experience

by Barbara Brown Lathrop

Have you ever experienced a feeling of closeness, a kind of harmony with nature? If you've spent time on Wild Horse Island, you'll understand what such a feeling is. "Enchanting" is perhaps the most apt word to describe the atmosphere: a 2,165-acre island with a diverse wildlife population, a vast array of wildflowers and other plant life, and with a history so rich you feel its presence the

minute you step on shore.

Where is this paradise? We aren't speaking of the Caribbean or the South Pacific, but of Montana. There really is an island in northwestern Montana, and those of us living in the Flathead Valley are fortunate to have it near us in renowned Flathead Lake. The island lies in the southwestern portion of the lake, the largest body of fresh water west of the Mississippi. Although easily accessible from almost any spot along the lake's western shore, Polson, Elmo and Big Arm bays are the most popular take-off points for the island.

You first see the island as you drop over the hill at Rollins, heading south on U.S. Highway 93. Its contours are impressive; the smooth ridges, heavy forests, sunny slopes and rocky cliffs make you wonder what is really out there.

When first approaching Wild Horse, the magnificent ponderosa pines tower. As you get closer, the sweet smells of the island provide a warm welcome.

In spring, there is a seemingly endless variety of wildflowers—owl-clover, nodding onion, larkspur, yarrow and plains cactus are just a few. The hills and meadows are a golden blaze from the arrowleaf balsamroot and the rocky, dry hills boast a large number of bitterroots, Montana's state flower.

The combination of grasses, some native and others introduced by homesteaders of the past, along with other vegetation, timbered areas, rocky cliffs, natural salt licks and surrounding fresh waters make up an island that sustains bighorn sheep, mule deer, coyotes and various species of birds, including bald eagles, ospreys and red-tailed hawks.

At times, the bighorn population has exceeded the amount of forage available, resulting in winter kill. One alternative was the January 1979 trapping and transplanting of 102 sheep to selected areas in Montana. At that time, about 78 sheep were left on the island; today, approximately 55 sheep and 32 mule deer inhabit it.

Because a delicate situation exists, the Department of Fish, Wildlife and Parks has introduced a sound, balanced management program. Wildlife, plant life and human usage must coexist. "Day use only" and "no camping or fires" are among the regulations strictly enforced to protect the island.

During the summers of 1979, '80 and '81, a usage study was conducted and results tabulated (see chart). In 1979 and '80, most use came in July; in 1981, the island was most frequently visited in August. Among the most popular activities are hiking, photography and picnicking. Also, many boats circle the island in search of a glimpse of its wildlife.

Hiking on almost any area of the island allows an opportunity to view bighorn sheep, mule deer, coyotes, owls, hawks, bald eagles, a variety of birds or perhaps to glimpse the old horse and mule themselves, whose long years on the island reflect the serene environment in which they live (see "Wild Horse Island: Where the Horse and Mule Roam Free" on page 26).

An entire day can be spent exploring the many facets of the interior. The most spectacular hike is one that heads east, following the ridge to Eye Glass Peak, highest point on the island, where a splendid view allows you to see how the Flathead Glacier actually carved out the valley—a hike well worth the effort.

On a cruise of the island's edge, you might spot bighorn sheep and mule deer watering, an eagle soaring or many of the other wildlife species that inhabit the area. Of the many eagle nests in the state, one is on Wild Horse Island and you just might have a chance to view the year's young.

The area around the island is regarded as one of the best fishing spots in the lake by residents and increasing numbers of nonresidents alike. The grey-blue, glacial waters are the home of the native Dolly Varden and cutthroat trout, along with introduced lake trout and kokanee, to name just a few.

The opportunities to experience Wild Horse Island are nearly endless. To some, it is a wilderness. To others, it is an adventure, a place to beach your boat and explore. Still others enjoy spending time along the island's shores, perhaps bringing the family for a picnic or just stopping for a few hours of relaxation as you gaze out onto the shimmering waters. Another attraction is the spectacular sunsets, with pastels to challenge the imagination.

An experience on Wild Horse Island is a special one. Senses awaken, thoughts deepen and the serenity renews mind, body and soul. It is indeed a spot to nurture oneness with nature.■

Island Use Information

Activity	1979	1980	1981
JUNE			
Number of boats beached	96	29	9
Number of boats circling	—	86	19
Number of fishing boats	236	303	271
Sailboats	—	—	99
People hiking	266	136	182
JULY			
Number of boats beached	242	134	78
Number of boats circling	—	596	302
Number of fishing boats	1,245	1,381	1,446
Sailboats	—	—	353
People hiking	739	573	1,239
AUGUST			
Number of boats beached	218	114	133
Number of boats circling	—	413	302
Number of fishing boats	951	823	1,328
Sailboats	—	—	372
People hiking	432	496	1,410

The heavily forested northern and eastern regions of Wild Horse Island (left DFWP photo: Paul Bushaw) are a lush mixture of ponderosa pine, Douglas-fir, aspen and cottonwood trees, mosses and ferns. Hiking on almost any area of the island allows an opportunity to view bighorn sheep (DFWP photo: Dave Books) and bald eagles (DFWP photo: Barbara Brown Lathrop). The rocky, dry hills of the island boast a large number of bitterroots (DFWP photo: Tom Warren).

Wild Horse Island:

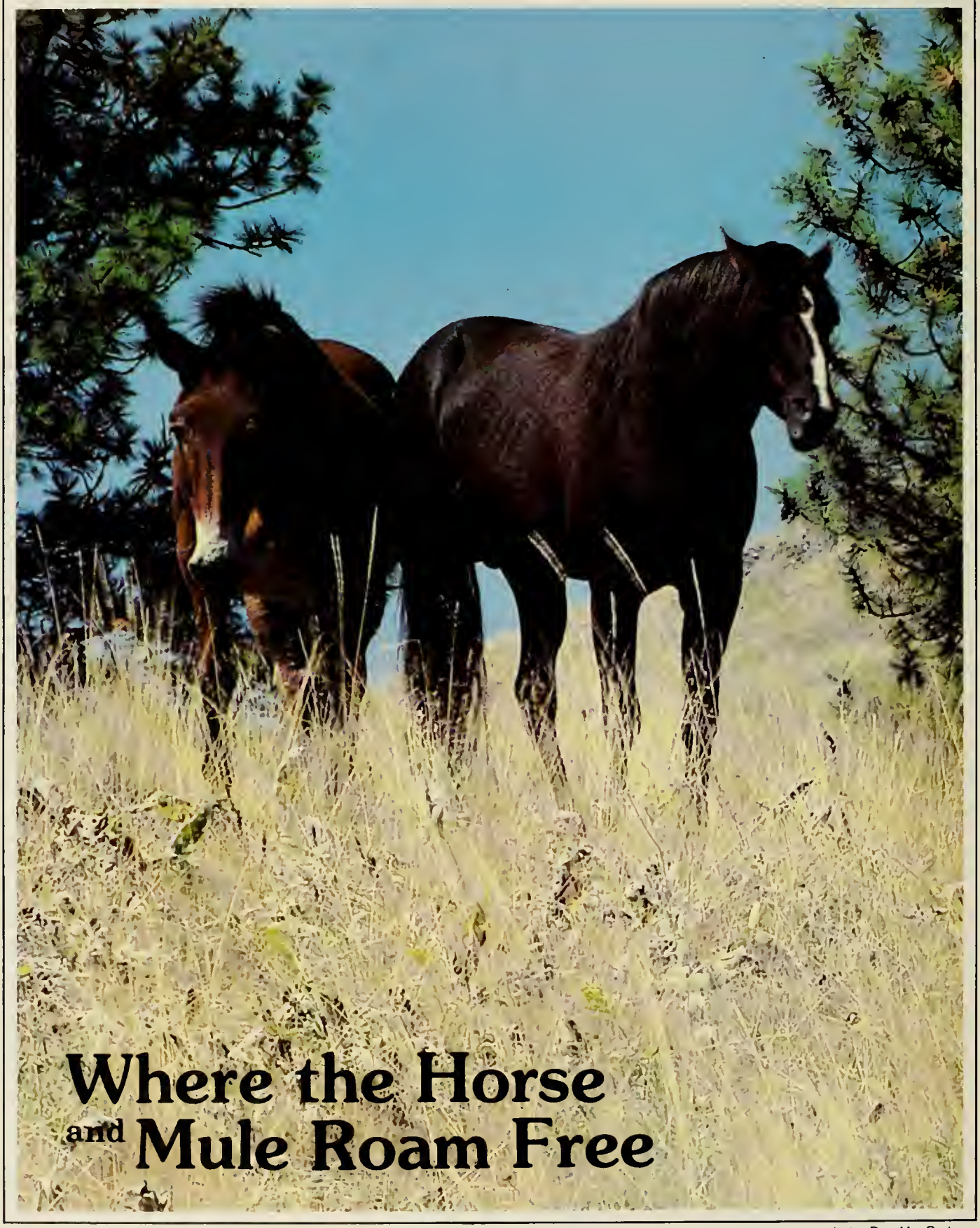


photo: Don MacCarter

Wild Horse Island.

The name evokes romantic images of the West as it used to be—vestiges of which are disappearing all too rapidly. But a living remnant inhabits Flathead Lake's Wild Horse Island in the forms of a 27-year-old black Arabian stallion and a 36-year-old brown mule.

The two have roamed free together for more than a quarter of a century on the island. They traverse the entire length and breadth, foraging in silent companionship. Let a human approach too closely, however, and the mule snorts a distinct warning. Not too long ago, the mule treed any unfortunate intruder. But he's too old now to do more than snort in anger, lay back his ears and bluff.

Their years tell on them. The horse's left hind hoof has grown out in splayed fashion like the shoe of an elf; the mule's front hooves are the same. Wild horses inhabiting rocky terrain trim their hooves through natural wear. But the hooves of these two grew awry, as advancing age slowed their activity.

They are protective and possessive of each other, rarely if ever seen apart. Although secretive, they have favorite haunts on the island—a swampy depression near some woods and an abandoned homesteader's barn which they seek out during winter storms.

How did horses get on the island in the first place? And for what purpose? Actual facts are clouded by time, but elderly Flathead Indians will tell you that it all started in the early 1800s, before the "Mountain Man" era. The story goes that Blackfeet regularly came into the Flathead Valley through what is now Glacier National Park to steal horses from the Flatheads. To keep their horses safe, the Flatheads hid them on the large, rugged island on the west side of the big lake. They would swim the horses over (about a half-mile swim at the least) and then round them up again when the danger was past—easier said than done on a mountainous island of over 2,000 acres.

In the middle 1800s, the Flatheads were still securing their horses on the island in the same manner; in 1853, War Department officials observed between 60 and 70 head of horses roaming the island, and learned that 45 others had been removed earlier that year.

In 1910, Wild Horse Island (then and now within the exterior boundary of the Flathead Indian Reservation) was opened for homesteading by non-Indians. Between 1910 and 1915, several homesteaders tried farming, cattle ranching and dairying—to no avail. The mute remains of old implements, abandoned buildings and fencing, and a tenacious orchard are all that is left of their efforts. When the homesteaders failed, some of their horses probably remained on the island and multiplied.

The island and any horses living on it were left in relative solitude until 1931 when the Rev. Robert Edington took possession of it and built Hiawatha Lodge as a dude ranch. He brought horses to the island for eastern tourists to ride as they viewed its wildlife. In 1940, the island had a new owner, Lewis Penwell of Helena. He had ambitious plans to breed and train horses on the island while continuing to operate the dude ranch. Since his guests particularly seemed to enjoy wildlife, Penwell added to the local fauna by establishing a game and bird preserve; he petitioned the Montana Fish and Game Commission to stock the island with mountain sheep, mule deer, elk, antelope and game birds. Of those stocking efforts, only the first two were successful. Elk are now only rare and transient visitors; the antelope pair died within a year, and the island's blue grouse population is small and rarely seen. On the other hand, the mule deer and bighorn sheep proliferated. (As a matter of fact, the questions of carrying capacity and population control were raised after a major bighorn die-off during the harsh winter of 1977-78.)

Within two years, Penwell had sold the island to Dr. J.C. Burnett. Dr. Burnett removed the existing herd of horses and brought in an undetermined number of Arabians for breeding stock. By 1953, the free-ranging horse herd numbered about 100—80 adults and 20 colts.

The mule deer population was at its peak and bighorn sheep numbers were high, contributing to severe overgrazing of the island. The winter of 1955-56 was a bad one, notorious for its harshness across the entire Northwest. Baled hay was air-dropped to the starving horse herd. But the lake had completely frozen (a rare occurrence) and the horses couldn't drink from it. Many of the animals died from impaction after ingesting too much hay. Only four horses and one mule survived.

It is "said"—with no facts to support the contention—that the black stallion and the brown mule ultimately killed the remaining horses in a battle over territories. Whether this is true, by 1962, only two horses and one mule survived. Ten years later, only one horse and one mule were left.

Bourke MacDonald acquired the island in 1961. He began working with the Department of Fish, Wildlife and Parks (DFWP) to maintain the island's wildlife. He ultimately sold 49 private lots on the island, and today 17 private cabins dot its shoreline. When Mr. MacDonald died in 1973, his heirs wished to preserve the remainder of the island in a natural state. In a complex agreement involving the DFWP, The Nature Conservancy, the Montana Legislature and the federal Land and Water Conservation Fund, the MacDonald family's wishes were guaranteed.

So the horse and the mule remain—old and infirm, with tails trailing on the ground and manes like Rapunzel's. Their life of abundant feed, little stress and peaceful solitude has kept them in good stead.

But at ages 27 and 36, they cannot go on much longer. Another winter, especially a hard one, could finish them off. And when they go, Wild Horse Island will be without horses for the first time in over 180 years—and Montana's newest state park will lose a small but special part of what makes it unique.■

by Jane and Don MacCarter

Peaks, Parks Draw UM Students

by Cary Holmquist
(UM University Relations)

From peak to peak and park to park, University of Montana students take advantage of weekends, vacations and even a few classes to learn more about Montana's wildlands and rivers. Singly and in groups, sponsored and private sorties venture from the campus into the "Land of Shining Mountains" in search of adventure, solitude, knowledge and splendor.

The UM Outdoor Resource Center (ORC) is the primary organizer of many tours and noncredit classes which take students and, when room, nonstudents to the mountains, trails and rivers of the western U.S. and Canadian national parks, wilderness areas, ski slopes, game ranges and preserves.

Each quarter, more than 400 students take classes and hit the trails in any of six scheduled ORC trips and 30 additional informal outings. About 1,400 students participate in seminars on outdoor skills, wildlife and wilderness preservation advocacy each quarter.

Opportunities offered are both diverse and challenging. On a climb last fall (above photo: ORC), UM students Beth Harrell (leading), Danny Dolan and trip assistant Carol Glaes trudge across Pitamakan Pass in Glacier National Park—a favorite haunt of those who like to climb mountains and traverse snow peaks. Wending their way through boulders in the Blackfoot River (left photo: Wes Hulla, UM), students float toward Missoula on a late summer rafting trip. Student Jane McAllister begins a descent down Trapper Peak in the Bitterroot Mountains (right photo: ORC) as part of a noncredit class in mountain climbing. Students spend weeks learning safety techniques before such a trip.

Many of the classes are taught in conjunction with the UM Chapter of The Wildlife Society and Wilderness Studies Program. Trip participants often act as guides, identifying and analyzing local flora, fauna and geological features.

The ORC operates its outdoor programs under the reasoning that it is important for students to gain a greater awareness and understanding of the state's natural resources and experience the introspectiveness that comes while in nature's vastness.■